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ABSTRACT

The authors first present their views on directions for change. They see the desirable direction for change involving a significant expansion of the Federal financing of education; decentralization of the administration and control of schools; and the creation of centers for education research, training, innovation, and information on a regional basis. The authors examine the causes of the current crises in education and then submit proposals which are generated out of this analysis. The main proposals are (1) income tax deductions as an incentive system for more equal educational opportunity; (2) an experiment in voting methods designed to improve the level and composition of resources in education; (3) the improvement of public control over resource allocation in education; (4) the collection, evaluation, and dispersion of education information; and (5) a program for full-costing of higher education. (Author/JF)

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Larry S. Singell.

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THE PROBLEM OF OBTAINING AND USING RESOURCES IN EDUCATION: SOME PROPOSED PROGRAMS FOR PURPOSIVE CHANGE

Submitted to:

The Commissioner's Planning Unit

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PREFACE

The immense complexity of the American system of education and the diverse but critical functions it serves in American society makes it impossible for any single effort to capture either its impact or failures in a comprehensive way. In addition, the close relationship between educational practice and social behavior complicates any effort to examine any single aspect of the system in isolation. Thus, while the purpose of this study was to concentrate on the problems surrounding the obtaining and using of resources in education, we felt it necessary to present our analysis in some larger framework. At the same time, the magnitude and complexity of the issues involved forced us to overlook some factors while concentrating on others.

The decisions regarding the factors upon which we ultimately concentrated were tempered considerably by our understanding of the crisis in American education and perhaps more importantly, by what we saw as the desirable direction for change. Hence, we feel it is expedient to preface this study with a very brief statement of our views on the directions for change, not only as necessary background for the reader, but as an apology for some of the otherwise important issues which we failed to consider. In broad terms, we see the desirable direction for change involving three fundamental developments:

(1) A significant expansion in the federal financing of education. This expansion is a necessary step in achieving tax efficiency and equity and in achieving the goal of the equalization of educational opportunity. The increased mobility of the United States population, the striking gap in national education research,

and the growing urgency for equality of opportunity all require this expanded effort. Without this expansion there is convincing evidence that the level and quality of education will be less than the socially desirable amount.

(2) The administration and control of the school must be increasingly localized and decentralized. Such a development is not only a necessary ingredient for cultural pluralism, but the increased interaction of parents, teachers and students can provide a basis for adaptability to individual educational needs and demands. We feel strongly that this will also increase the willingness to financially support an expanded educational effort. The reliance of society on the education system for cultural homogenization may have been useful historically, but a monolithic culture is now neither desirable nor possible. We recognize the overwhelming difficulties in developing a sense of community in the modern urbanized society. This is, however, a vital social development and an education system characterized by Public School 491 cannot possibly foster this spirit.

(3) Centers for education research, training, innovation, and information on a regional basis must be developed and a mechanism for communication between the inventors and developers of improved education technology must be fostered. This development is necessary not only because of the significant underinvestment in education research and the spillovers associated with it, but because a commitment to expertise in education R & D may help to avoid the pendulum like "fads" which have characterized "innovation" in education. The process of basic improvements in education technology will require a long run commitment. Indeed, the low pay-off associated with much current education research can be attributed in significant measure to an absence of these investments in the past. Thus, a current dollar

cal investments have generated a substantial knowledge base, and this complete legacy can be an input with each new dollar invested. The increased role that education must play in the structuring of an individual, social, and physical environment which facilitates a high quality of life will require a more adaptable and sensitive educational process.

There are, of course, many factors related to the above concern which time constraints kept us from considering. Several important ones include a more complete consideration of the role of higher education in the process described above and a more complete analysis of the nature and source of the tax revenues necessary to achieve what we conceive as the goals of the education system. These issues will, of course, require further consideration.

In conclusion, we feel some urgency in pointing to some basic concerns that emerged out of our reviews of the literature and our conception of the potential impact of the National Institute of Education. In brief, we are concerned that hasty pursuit of "equality of educational opportunity" or even worse, output may lead to a reduction in realized equality. This might occur because overzealous efforts to do this in the public sector may lead to reduced support for public education and a substitution of private education. A more appropriate immediate goal in our opinion is the equalization of inputs (in dollar terms). Secondly, we feel one of the major threats to continued success in education is the "more is better" syndrome. This approach in the past is in some important way responsible for the current backlash to spending for education. "More" must be combined with efforts at more efficient allocation. Finally, a factor mentioned above is that the

emphasis and expenditure on "programs" versus "research," seems misplaced. This need not be so if each program is financed in a way so that adequate learning can take place from the experimental effort. In short, the most significant gap we see in the knowledge industry is in the knowledge regarding the learning process itself. Failure to invest in this area will clearly make the pay off from any other efforts significantly less than what is potentially possible in the long-run.

Obtaining and Using Revenues

The Overview of the Crisis

Abstract

American education is in the midst of a financial crisis particularly if "crisis" is taken to mean "a turning point", or a "crucial time." The outcome of this crisis will clearly have broad and important social implications. A careful examination of the performance of the educational industry over the last several decades, however, reveals signs of very striking success. For example: (1) there has been a marked increase in the number of students educated at all levels; (2) the retention of students by the schools has improved significantly; (3) there is some evidence that the quality of instruction has improved; (4) the average college and professional training of teacher and administrative inputs has improved; (5) education has made enormous contributions to national growth and individual productivity; (6) education has contributed in a major way to the reduction of poverty. Even an examination of the most recent goals set for the education industry reveals that expectations have been realized or surpassed. If these achievements are lost sight of, numerous myths regarding the "failure" of the schools will lead to misguided change.

Yet no one will deny that in the face of these remarkable achievements the education system is in the midst of a severe crisis. The signs are widespread and the desire for change is being reflected in numerous ways. For example, in the marked reduction in public school bond elections approved, increased disruption by students, the resistance of state legislatures to the rising cost of education, increased teacher, military and parental concern and revolt. An attempt is made in the report to deal

with the question of what factors explain this paradox of crisis in the [illegible] of success.

While the factors contributing to the crisis are numerous and complex we believe the major influences include the following: (1) the education sector has been technologically nonprogressive. This results from: (a) inadequate expeditures on educational research and development (b) inadequate or misplaced incentives for innovation (c) a failure to integrate the developmental aspects of innovation within the setting of the educational process; and (d) the fact that the service sector generally is resistant to technical progress.

(2) The education sector by relying heavily on the property tax is faced with special problems. These problems occur in part because (a) the obscure nature of the product of education as compared with the product [illegible] the private sector, and the tax itself generates resistance to property tax increases to finance education; (b) the nature of the property tax distorts efficiency in the economy; (c) the property tax results in very unequal tax burdens and this creates a feeling of unfairness; (d) the tax is difficult and costly to administer; (e) it results in revenue increasing more slowly than education demands (it is inelastic) and ; (f) it falls most heavily on the poor (is regressive).

(3) The decision process in education does not allocate resources in accordance with educational needs. This occurs in part because (a) the conflicting pressures for centralization and decentralization have resulted in an inefficient hodgepodge of professional, local and state control of education; (b) consolidation of school districts has created in many districts a monopolistic educational bureaucracy, and perhaps encouraged the development [illegible] militant unions; (c) a complex set of state laws and administrative

practices make the elected (or appointed) public representation powerless to affect the system.

(4) the product of education has taken on new meanings in the affluent society. Some of the consideration here include (a) an increased emphasis on the "quality" of education; (b) the development of a youth culture; (c) the expanded time available for leisure requiring important adjustments in education; and (d) the increased resistance to using the school as a "social melting pot". All of the above may complicate increasing resources available to education in the future.

It is argued finally that some important aspects of the crisis have been generated by the immense success of the education industry and that failure to understand this may lead to misguided efforts at change. In particular (a) the intense demands for improvements in quality arise naturally from more highly educated parents; (b) the high standard of living made possible in part through increased education requires some adaptation in curriculum; and (c) the success of consolidation efforts may have contributed to the bureaucratization of the schools. Finally, all of the above must be used as a framework through which to view the proposals for change.

I. The Paradox of "Crisis" in the Face of Success

The dictionary defines crisis as "a turning point in the course of anything; a decisive or crucial time...a crucial situation...whose outcome decides whether possible bad consequences will follow...,"[1] and in these terms there is widespread acceptance that American education is in the midst of a crisis. There is, however, some difference of opinion regarding the exact nature of the crisis as well as what outcomes are required to avoid the "possible bad consequences." Indeed, numerous volumes have appeared in the last few years examining and documenting various aspects of the crisis, but any attempt to weigh alternative directives for change must be placed in the context of the broader forces which have brought us to the turning point and which now necessitate change.

While we have limited our concern in this report to the major factors surrounding the problems of financing public education in general and the taxpayers' recent stiffened resistance to financing education in particular, we recognize that this financial crisis in education is but one part of a larger complex social reality perplexing the total fabric of American society. Hence, we will try to outline in a broader framework those forces producing the financial crisis in education. Some understanding of these forces is important to the consideration of any proposed change in the educational system. This framework is then used as a basis for some specific programs which we feel will move the education system in the direction of purposive change.

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[1] Webster's New Word Dictionary, College Edition (1969).

A. The Evidence of Success

Anyone who examines the performance of the education industry, defined as the schools, colleges, universities, and public and private organizations for formal education, in the United States over some long period of time, must be most impressed with its success on almost any criteria society deems important.

1. Increased numbers of the population educated at all levels.

At the turn of the century, there were approximately 15.3 million young people enrolled in elementary and secondary schools in the United States (about 70 percent of the school age population), but by 1968, 43.9 million youth were being educated in elementary and secondary schools (about 85 percent of the school age population). Not only did the number and percent of the population being educated expand, but the amount of education provided to each student expanded significantly. Thus, in 1900, only about 15 percent of the school age population who finished elementary school graduated from high school (12 years of education), while in 1968-69 almost 80 percent graduated. The expansion in college enrollment is even more striking. (The reader will find this data in Tables 1, 2, and 3 in the Statistical Appendix.)

2. The quality of education provided has improved significantly.

With this remarkable increase in the population served, illiteracy rates fell to only about 2 percent of the population in 1970, and other measures of student ability show remarkable improvement. (See Table 4 in Statistical Appendix.) For example, scores on tests designed to measure the "general learning ability" or "verbal intelligence" for a sample of draftees markedly increased from World War I to World War II.[2]

2.

3. Improvements in education have made significant contributions to national growth and productivity.

Numerous studies have also demonstrated that these remarkable achievements in the education industry contributed in a very significant way to the growth and productivity of the United States economy. Thus, for example, a major study by E. F. Denison estimated that from 1929 to 1957, 21 percent of the growth in real national income per person employed was attributable to the greater education of the labor force, while another 36 percent was attributable to the "advance of knowledge."[3]

An alternative way of examining the contribution of education to national growth and to the increase in the standard of living is to think of education as an investment which increases the earning potential of individuals. A large number of studies demonstrate that conservative estimates of these returns are:[4]

Elementary Education	35 percent per annum
High School Education	15 percent per annum
College Education	10 percent per annum

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[3] E. F. Denison, The Sources of Economic Growth and the Alternatives Before Us, Supplementary Paper No. 13, Committee for Economic Development, New York, January 1962. For a critical review of Denison, see M. J. Bowman, "Schultz, Denison, and the Contribution of 'Eds' to National Income Growth," Journal of Political Economy, October 1964, pp. 450-65.

[4] A large number of researchers have estimated the returns to education, and the results are quite consistent. Some of the best studies include the following: H. P. Miller, "Annual and Lifetime Income in Relation to Education: 1939-59," American Economic Review, December 1960, pp. 962-87; G. S. Becker, Human Capital. A Theoretical and Empirical Analysis, with Special Reference to Education. Princeton, N. J.: Princeton University Press, 1964, pp. 187; B. A. Weisbrod, "Education and Investment in Human Capital," Journal of Political Economy, Suppl., October 1962, pp. 106-24; W. Lee Hansen, "Total and Private Rates of Return to Investment in Schooling," Journal of Political Economy, 81, April 1963, pp. 128-41.

A way of interpreting these findings is to compare the returns from education to other investment opportunities in the society. In these terms education has clearly been a profitable investment. While several more recent examinations of the returns to education have maintained that the above results attribute to education, income gains which might be explained more appropriately by ability, family connections, or social class; when more refined data have been used to "hold the effect of these variables constant" increased education is still associated with higher earning capability.[5] The returns to education as an investment have and continue to compare favorably with other investment opportunities in the private sector. Furthermore, the returns to education surpass by many times, a large number of other government investment programs.[6]

ed. measures diplomas ? degrees ?

It is also interesting to note that although there have been substantial increases in the absolute number of people and the percent of the population educated, the rates of return to education have not declined significantly.[7] This suggests that education has remained a highly worthwhile investment when both costs and benefits are considered.

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[5]For the discussion of this problem and attempts to deal with this see: J. N. Morgan, M. H. David, "Education and Income," Quarterly Journal of Economics, August 1963, pp. 423-38; B. Hanoch, "An Economic Analysis of Earnings and Schooling," pp. 310-330; and Herbert Gintis, "Education, Technology, and the Characteristics of Worker Productivity," Papers and Proceedings, American Economic Review (May 1971).

[6]Thus, for example, the rates of returns on numerous dam projects have been less than 5 percent while the returns to elementary education are between 5 and 10 times as high. These results are suggestive of a significant underinvestment in education.

[7]See, for example, J. N. Morgan and M. H. David. pp. 423-38.

4. Increased education has also significantly contributed to the reduction of poverty in the United States.

The expanded effort in the education sector is also associated with significant declines in the extent of poverty in the United States. Indeed, in the last four decades, over half of the population of the country moved significantly beyond the poverty line and several studies have documented the important role played by increased levels of education in this process.[8] Expanded efforts have also been made in the recent decade to increase the education services to the poor and disadvantaged. Thus, for example, the number of people completing training and obtaining employment under the Manpower Development and Training Act increased over sevenfold between 1963 and 1968. Almost a fivefold increase occurred in programs for the emotionally and socially maladjusted, the mentally retarded, the visually handicapped, etcetera, between 1947 and 1966. (See Tables 5, 6, and 7 in the Statistical Appendix.) Careful research efforts have demonstrated that benefits to these programs, even if conservatively estimated, range from four to fifteen times the cost.[9]

In aggregate terms, there can be no doubt that these expanded efforts have increased the productivity of the poor. Thus, the increased training and education have contributed to a reduction in the extent of poverty in the United States. Between 1947 and

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[8] See L. C. Thurow, "The Causes of Poverty," Quarterly Journal of Economics, February 1967, pp. 39-57; T. W. Schultz, "Public Approaches to Minimize Poverty," Poverty Amid Affluence, ed. L. Fishman. New Haven, Conn.: Yale University Press, 1966, pp. 165-81; T. W. Schultz, "Investing in Poor People," American Economic Review, May 1965, pp. 510-20; R. A. Wykstra, "Some Additional Evidence on Education and Non-participation in the Labor Force," Western Economic Journal, June 1967, pp. 288-93.

[9] For example, see Thomas Ribich, Education and Poverty, Washington, D. C.: Brookings Institution, 1971.

Same def. for poverty?

1969 the number of poor families fell by almost 50 percent, and the percent of all families in poverty declined from 24.4 percent to 9.3 percent.[10]

5. The quantity and quality of resources allocated to education have increased significantly.

Of course the achievements described above have required an expanded quantity and quality of resources devoted to the education effort. It must be noted here, however, that this improvement is itself a tribute to the educational process because the unique nature of the educational industry requires that it produce a significant part of its own inputs! That is, teachers, administrators and other school staff are themselves a product of the education system. The number of teachers, staff and administrators per student has increased (see Tables 8 and 9 in the Statistical Appendix), and at the same time the graduate and professional training of these teachers have significantly improved. (See Table 10 in the Statistical Appendix.)

6. The expanding education sector required increased expenditures.

This increase in the magnitude and quality of the education product has of course not come without cost. The relative scarcity of highly trained people in the rapidly developing U. S. economy has resulted in sharply rising costs for these skills. Price adjusted cost per pupil in average daily attendance has increased more than three times between 1929 and 1970. (See Tables 11, 12, and 13 in the Statistical Appendix.) Total expenditure in education in the

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[10] Economic Report of the President, Together with the Report of the Council of Economic Advisors, U. S. Government Printing Office, Washington, D. C., 1971, p. 220.

United States is now approximately seven percent of the gross national product and this percentage is rising steadily. (See Table 14 in the Statistical Appendix.) The nature and causes of this increase in cost deserve careful consideration and will be treated at a later stage in the report.

The purpose of the above discussion has not been simply to praise the immense success of the educational "industry," but rather to provide some background in which to raise the question--why the current crisis? We have tried to document that:

(1) The education industry has over the last 30 or 40 years expanded not only the quantity but also the quality of its product (students) in a very significant way by:

(a) increasing the quantity of students educated.

(b) educating the average student a longer time (in both years and days per year).

(c) providing a higher quality of education inputs (many of which had to be produced by the industry itself).

(2) The education industry has produced an output that has significantly contributed to national growth and individual productivity.

(3) The education industry has made an important contribution to the reduction in poverty.

7. Very recent accomplishments of the education sector have been equally significant.

In the more recent period, the accomplishments of the education industry are equally remarkable. In fact, it will be argued later that in a very fundamental way the current crisis in education is due

TABLE I. GOALS FOR THE 1960's COMPARED WITH ACHIEVEMENTS

THE SPECIFIC GOAL PROPOSED	The Target Set for 1970	Achievement by 1970 (or closest year available)
"A higher proportion of the gross national product must be devoted to educational purposes."	5 percent	(1969) 7.5 percent
"Annual public and private expenditure for education by 1970 must be approximately 40 billion."	40 billion	(1960 dollars) $46.0 bill (current dollars) $69.5 bill
"Teacher salaries at all levels must be improved." (Average salary in 1960 $5,174--adjusted for price changes $6,648).		(1970) $8,840 (increase of 70.8% in money wages and 33.0% in real wages)
"Small and inefficient school districts should be consolidated." (There were 40,000 school districts in 1960).	10,000	(1969) $18,224 Total operating districts
"Within the next decade at least two-thirds of the youths in every state should complete twelve years of schooling...."	.67	(1968) lowest state 65.7 U. S. average 78.8
"At least one third (of the students) should enter college."	.33	(1968) 30.4
"There must be more and better teachers." (Number of teachers in 1960 -- 1.8 million).		(1970) 2.9 million

Source: The specific goals proposed are taken from: Goals for Americans: Programs for Action in the Sixties. Administered by The American Assembly. A Spectrum Book (1960). See especially pp. 6-7.

to this overwhelming success. A quick feeling for the recent achievements can be obtained by looking at the national goals set for education in the 1960's. President Eisenhower appointed a high level nonpartisan commission to "develop a broad outline of coordinated national policies and programs" and to "set up a series of goals in various areas of national activity." The specific goals, which appeared in Goals for Americans: Programs for Action in the Sixties and the extent to which they have been reached are summarized in Table I. It might be noted that in goal after goal, the expectations or target set for 1970 was met or, frequently, exceeded by overwhelming amounts. Further, and a point that will be returned to later, the very success in the achievement of these goals surrounds the discussion of the crisis. For example, increased public expenditure, higher teacher salaries, a reduction in the number of school districts, more and better teachers, and more college graduates can be juxtaposed with resistance to higher costs of education, large monopolistic school bureaucracies, a surplus of teachers, and an excess of college graduates (in relation to jobs available requiring their skills).

B. The Signs of Crisis

The above indicators of success should serve to at least illustrate that some of the myths regarding the crisis in education lack a sense of history, if not understanding. No one can deny, however, that a crisis does exist, particularly if this is conceived of as "a turning point...a decisive or crucial time...." The acceptance is so widespread that this is a decisive period for education decision making that it barely needs documentation.

1. The signs of crisis are very widespread.

The wide divergence in the proposals for change is only one indicator of the seriousness and complexity of the crisis. The California Supreme Court Decision, the increased disruptions by students,[1] the resistance of state legislatures to expanding education costs, the parental concern (in both ghetto and suburban schools) regarding the quality (or lack of equality) of education and the large number of school closings over financial difficulties can all be interpreted as signs of a severe pressure for change.

Signs of the Crisis

2. The desire for change is reflected in the change in public support of education.

Clearly, although other forces had some influence, the above factors help to explain the results of public school bond elections. Between the years 1957 and 1965, on the average, three quarters of the bond issues passed. Since then, the rate of passage has declined, and in 1968-69 only 43.6 percent of the bond issues were approved by the voters. (See Table 15 in the Statistical Appendix.) This change in the willingness to finance expanded education efforts represents a significant pressure for a re-evaluation of the educational system.

No effort is made here to document explicitly the reliability or the reasonableness of the above concerns, but rather to ask what factors account for this unusual strain on what seems to have been a highly successful effort?

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[1] See, for example, Steven K. Bailey, Disruption in Urban Public Secondary Schools, Syracuse University Research Corporation and Robert Brustein, Revolution as Theatre, New York: Liveright, 1971.

II. The Basic Factors Contributing to the Pressure for Change

Any evaluation of the appropriate direction for change in education must be placed in the context, not only of the success of the education industry, but in the framework of a careful analysis of the forces contributing to the pressure for change. Failure to take cognizance of either of these considerations can result in misguided efforts at purposeful change. While we cannot treat all the factors involved, it may be possible to highlight and illustrate some of the major or central forces. In particular, an effort is made here to document those forces to which the policy proposals developed later in this report respond. Hence, we see the following as the most important factors perplexing the efficient functioning of the education industry.

A. The education sector has been technologically nonprogressive.

The cost of production of any good or services in the economy is dependent upon the price of the inputs required, the mix of inputs used, and the amount of inputs required for each level of output. The process whereby increased output is achieved with the same inputs (which economists refer to as productivity) is the result of technological progress. The rate at which technological progress occurs is therefore an important contributor to growth of any industry or for that matter the economy in total. Thus, technological progress has played a central role in increasing the standard of living because it has allowed the society to obtain an increased quantity or quality of goods and services from its limited quantities of resources. Education has contributed to the process of increasing productivity, because many of the changes in productivity have required either additional learning directly or the flexibility and adaptability that

general education seems to generate. However, the education sector itself has been very slow to adapt to technical advance. Indeed, the basic teaching and learning model in use today is at least 4,000 years old. It is important to ask, therefore, why the education sector which has been so important to technological innovation in the total economy has been so reluctant to turn the same ability in on itself?

1. The investment in education research and development is inadequate.

One very important factor in this reluctance has been that the education sector allocates such a small fraction of its resources to the area of the research and development of new technology. That is, the process of improving productivity through technological improvements requires the use of resources. Human talent as well as other resources must be taken away from the normal production process and used to discover and implement new and better methods of producing goods or services.

Thus, the allocation of resources to research and development is a necessary ingredient to improved methods of satisfying human wants. Several studies have demonstrated that about one half of one percent of the total United States expenditure on education is allocated to research and development. Many industries in the U. S. economy spend 5 to 10 times this fraction.[12]

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[12] Cf. Edgar L. Morphet and Charles O. Ryan (Ed.), Designing Education for the Future, No. 3, Citation Press, New York (1967), Chapter 5; Innovation in Education: New Directives for the American Schools, National Policy Statement, Committee for Economic Development (July 1968).

2. The proper incentives required to stimulate innovation in education are not provided.

While there are perhaps many reasons for this failure to invest in education research and development, several deserve mention. The incentives which stimulate the invention and innovation of new techniques in private industry are largely absent in education. Thus, the existence of patent rights in industry, which provides a "protected market," until the firm has some opportunity to collect the full cost of development, is not permitted for the development of ideas. This clearly is one vital element in dulling the incentive for individuals to develop new ideas for more efficient education practice.

Of course, some potentially profitable innovations might be developed by teachers and school administrators (even if patent rights could not be given) if the reward structure would reinforce this behavior. However, the typically rigid salary and teaching structure in most school settings prohibits this practice. That is, if teachers or administrators who were innovative could be compensated for their efforts by, for example, higher salaries or reduced teaching loads (to provide the incentive or time for implementation and development) it is quite likely that greater innovation would occur.

A much broader issue which, while extremely important, has not been investigated to our knowledge, is the incentives involved for doing education research. The college of education in many universities has the image of mediocrity. It is very likely that this image, whether realistic or not, discourages the entry of more capable and innovative individuals. This problem deserves careful study.

3. Many of the benefits of private research are lost because the development stage is neglected.

The rapid increase of private education R & D firms suggests that significant potential exists in the area of education innovation; however, the removal of this activity from the close proximity to the "productive process" (the teaching of students) is likely to significantly reduce its effectiveness. Experience in industry suggests that while research can be carried out in the "laboratory" setting, development must take place in the context of actual production. Hence the value of much private education research may be lost because actual production is largely carried out in the public sector.[13] Clearly, some effort must be made to provide for the developmental aspects of education innovation within the setting of the education process.

4. The service sector is in general more resistant to technical innovation.

This problem is further complicated by the general resistance of the "service" sector to technical advance. That is, the most difficult functions to "automate" are the ones which use humans to directly "service" human needs. While this may not be undesirable from the standpoint of social values--that is, we want people to socialize the young, represent us in court, or preach to us on Sunday mornings, and not machines--the result is that these services will become relatively more expensive and hence more of society's resources will have to be allocated to these activities. This is, in part, an explanation of higher costs in the education sector.

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[13] It is interesting to note that one investigation found that teaching machines which research had shown to be "effective" had been purchased by government funds but were left in the basement of the school completely unused. See the Progress Report, the

That is, growing demand combined with a slower rate of technical progress requires that prices rise more rapidly than the sectors which experience greater technical progress. Using 1960 as a base year, prices of all commodities purchased by consumers increased by 24 percent between 1960 and 1970, while prices of consumer services increased by 45.3 percent in the same period.[14] Prices of goods and services purchased by the education sector, seem to have increased more than other public services. For example, over the 1955-1965 decade (while school enrollment increased 37 percent) prices increased for goods and services purchased by schools by 48 percent. This compares with an increase of 35 percent (while population served increased by 22 percent) in the prices paid by all other public services including health and hospitals, public welfare, highways and urban services.[15]

In sum, the fact that the education sector has been technologically nonprogressive has resulted in the cost of education rising. In addition, when comparisons with other sectors in the society are made, it may produce the feeling that the same service could be provided more efficiently. The increased attention to cost effectiveness studies of the education process by business minded individuals is one reflection of this concern. The growing unwillingness of society to increase expenditures on education may be, in part, stimulated by the (misplaced?) comparisons of growing efficiency in agriculture and manufacturing and the constant "technology" in education.

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[14] Economic Report of the President, p. 200.

[15] See Innovations in Education: New Directions for the American School, p. 25.

B. The Heavy Reliance on the Local Property Tax to Support Education Creates Special Problems.

Extensive reliance on the local property tax to finance elementary and secondary education results in a two-sided situation which contributes to the restriction of the magnitude and flexibility of resources allocated to the educational sector. First, the nature of the learning process and output of education are uncertain and intangible in the minds of the taxpaying community, and secondly, the property tax is quite real and explicit. Furthermore, the property tax is considered by many individuals to be an inequitable tax. All of these factors may result in discontent generating resistance to continued expansion of the education industry.

1. The nature of the education product makes financial support generally difficult.

In addition to providing a service which is abstract and difficult to quantify, the returns to education come over a long period of time--a generation--and hence, the "product's" exact benefit to the taxpayer is uncertain. Thus, the linkages between the tax dollar paid and its "payoff" to the individual and society are complex and obscure. As a result, there may be a tendency to underspend on education, in comparison to other government programs where the benefits are more concrete and immediate.

For example, the linkage of benefits and cost is particularly significant for individuals without children and to the elderly who no longer have children in school. The current process of financing schooling requires these people who receive benefits very indirectly to support higher tax rates on their property for

expanded education effort. As a result, society must depend on the acceptance of individuals of serial responsibility for financing public education. The linkages are further obscured by increased enrollment and consolidation of school districts, because these changes remove individuals even further from the process by which the tax dollars paid are transferred into educational services. That is, as the district educates more children and becomes more spatially diverse, the problem of observing the benefits from taxes paid becomes more difficult. All of these factors in combination present a real obstacle to obtaining and increasing resources for education.

2. The nature of the property tax distorts efficiency, creates feelings of unfairness, is costly and difficult to administer and results in revenue rising more slowly than educational demands.

Even if the abstract nature of the education "product" were not a problem, the heavy reliance on the property tax has resulted in special problems for education. The property tax is, perhaps, the most universally criticized major tax currently imposed in the United States, and as stated by one authority on the problem:

> If any tax could have been eliminated by adverse criticism, the general property tax should have been eliminated long ago. One searches in vain for one of its friends to defend it intelligently. It is even difficult to find anyone who has given it careful study who can subsequently speak of its failure in temperate language.... No writer of repute writing on state and local taxation in the United States has failed to offer his bit of derogatory testimony. No commission appointed to investigate any state tax system, which has had time, means, and inclination to secure the evidence, has failed to recommend the abolition of the tax or measures tending toward fundamental modification. Where permanent administrative tax commissions have had time, capacity, and means to busy themselves with what ought to be one of their major tasks, the study and

> constructive criticism of the state tax system, they have without exception arrived at similar conclusions. Yet the tax persists.[16]

Indeed, by every conventional criterion used to evaluate taxes, the property tax must be judged as inferior.

The standard criteria used for tax evaluation are (1) Neutrality --the extent to which the tax distorts the efficiency of resource allocation within the economy; (2) Equity - the extent to which the tax treats people in equivalent circumstances equally; (3) Compliance and Administration - the ease and cost of collecting the tax; and (4) Elasticity - the extent to which the tax revenue automatically grows as the economy expands.[17]

a. Distorting effects of the property tax

With respect to neutrality, the property tax distorts the price of housing relative to other goods. Because the property tax costs amount to between 20 and 30 percent of money expenditures for housing by owner occupants of single-family houses, it restricts increases in the quantity and quality of housing.[18] Furthermore, the property tax can and does effect residential and business location decisions within and among metropolitan areas. Finally, the property tax imposes different burdens on different industries. The differentials cannot be justified on the basis of differential benefits from local services in general or from education services in particular. Table II below, provides an example of this differential burden for utilities:

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[16] Jens P. Jensen, Property Taxation in the United States (University of Chicago Press, 1931), Chap. II. Cited in Dick Netzer, Economics of the Property Tax (The Brookings Institution, 1966), pp. 3-4.

[17] These criteria and much of the following analysis are from: John F. Due, "Alternative Tax Sources for Education," Economic Factors Affecting the Financing of Education (National Educational Finance Project, 1970), Vol. II, pp. 201-238.

TABLE 11. DIFFERENCE IN PROPERTY TAXES FOR VARIOUS UTILITIES

Industry	Property Taxes as Percentage of National Income Originating in
Electric and gas utilities	11.6
Pipelines	7.8
Telephone and telegraph	5.8
Railroads	4.9
Air transportation	0.04

Source: Netzer, p. 26.

This lack of neutrality in the property tax further distorts the efficient operations of the economy because it may distort the competitive position of some parts of the industry affected. For example, railroads are disadvantaged in their competition with motor carriers and air carriers because they must pay a much higher percentage of their revenues in property taxes than do the other two competitors.[19]

b. The property tax generates inequity because payments are not related to ability to pay, taxes are not assessed uniformly, and it is regressive.

The lack of equity of the property tax is also significant. A widely propounded view of taxation is that the tax burden "ought" to be based on the individual's or family's ability to pay. In an agrarian economy, such as the United States in its early years, income earned came largely from property, making property owned a good measure of income or the ability to pay taxes. In more advanced economies, such as the United States today, the property tax is no longer closely correlated with either income or wealth,[20] and hence taxes on property will result in people with similar ability to pay being taxed differently. Hence, continued economic development has made the property tax less and less equitable.

A second reason for the inequity of the property tax is the lack of uniformity in assessment practices among and within districts. Hence, the tax burdens of individuals who own equal amounts of property vary greatly. Furthermore, people with equal ability to pay in terms

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[19] Netzer, pp. 72-3.

[20] Due, p. 297.

of total wealth and/or income, but with different tastes with respect to housing, are subject to very different property tax burdens.

A third aspect of the inequity of the property tax results from the fact that it is regressive. That is, as income, and hence the ability to pay increases, the percentage of income actually paid in property taxes declines. This regressivity results because the property tax on business and rental property is largely shifted forward in the form of higher prices to the ultimate consumers of business and housing services.[21] Since the consumption of most goods, including housing, increases less than in proportion to increases in income, the property tax in effect becomes regressive.[22] This latter point that consumption of housing services, as a percentage of income, declines as income increases, also makes the property tax on owner-occupied housing regressive over much of the income range.[23] (See Tables 16, 17, and 18 in the Statistical Appendix.)

An important aspect of the equity problems associated with the property tax is that it frequently places a severe burden on older persons. As stated above, the property tax is not closely related to either total income or total wealth. This is particularly true of the elderly who own their homes. These individuals often have little income and their home represents the major portion of their wealth. Therefore, their property tax burden in relation to the

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[21] Netzer, p. 40; and Due, p. 298.

[22] Netzer, p. 40.

[23] Due, p. 298; and Netzer, p. 46.

real ability to pay taxes is highly inequitable. As pointed out previously, the benefits of education are perhaps most indirect and nebulous for the elderly. Thus, much of the resistance to increased educational effort when financed by increased taxes on property is to be expected from older persons. Factors such as these probably give rise to the feelings expressed in the statement that "old people vote down bond issues."

c. The administrative inefficiencies of the property tax

It is perhaps with respect to the administrative criteria that the property tax most seriously fails. The tax burden varies vastly among areas and indeed within areas due to the wide variety of assessment practices and the highly subjective nature of the valuation process itself. Assessment techniques and practices could be improved, but the cost of "good" administration may be quite high.[24] Despite the possibility of improved assessment, however, many experts claim that the tax simply can not equitably and efficiently be administered. This is due to the extreme heterogeneity of property and the complexity of ownership rights and claims in a modern economy.[25] Poor administration, then, may well be an inherent problem of the property tax which is fundamentally incorrectable. To the extent that these administrative difficulties

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[24] See Netzer, pp. 173-183. It might be noted here that another consumer complaint surrounding the administration of the tax is corruption. To the extent that people feel this exists, increased taxes for education will be difficult to obtain.

[25] Netzer, p. 5.

and inconsistencies create hostility, resistance to increases in the tax will further plague the expansion of educational effort.

d. Failure of property tax revenues to rise in proportion to the growth in income

The elasticity of the property tax is quite difficult to determine and is still a matter of some debate. The elasticity of a tax refers to the automatic increase of tax receipts in response to general growth in the economy. It is generally held that a "good" tax should be responsive to growth over time and that it be income elastic. (Technically defined, the income elasticity of a tax is the percentage change in tax receipts divided by the percentage change in income with a constant tax rate.) This measure should be close to, if not greater than, unity. This view is based on the value judgement that government expenditures should increase at least in proportion to income growth. This judgement is, of course, subject to debate, but automatic increases in revenue may be desirable because continued tax rate increases may be politically unpopular or costly to administer. (For the income elasticity of education for various decades see Table 19 in the Statistical Appendix.)

Income elasticity is a difficult concept to apply to property taxation because, while the market value of taxable property may very well be responsive to income growth, the property tax base will not automatically rise because of the pattern of reassessment.[26] Thus, a time lag in the responsiveness of revenues is often experienced. The problem is further complicated by the fact that local governments can and do adjust both the legal tax base and nominal tax rates, making

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[26] Due, p. 298 and Netzer, pp. 184-190.

computation of income elasticity largely a matter of judgment and educated guess. It is probably safe to say that the property tax has been secularly responsive in the United States, but its exact elasticity has varied widely over time and among various areas. Cyclically, the tax has been very unstable due largely to reassessment lags.[27]

Thus, the property tax which is by far the major source of tax revenue for local governments and school districts and which provides over half of all public school revenue must be rated poorly on the basis of conventional criteria of tax evaluation. (See Tables 20, 21, and 22 in the Statistical Appendix.) Clearly, the fact that the property tax, which supports education is perplexed by all of these problems, means that it must be seen as one of the major pressures for the existing crisis in education. However, the property tax does raise significant amounts of revenue and it is currently the major tax source available to local governments and school districts. The tax has been justified on the basis that some local government expenditures directly benefit property owners, but as already suggested the correlation between taxes and benefits is far from perfect. Furthermore, this "benefit" explanation ignores the principle of taxation on the basis of ability.

Increased discontent with the educational system and with increased property taxes presents a real dilemma for elementary

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[27] W. R. Dixon, The Secular and Cyclical Income Elasticity of the Property Tax Base. Unpublished dissertation, University of Colorado, 1971.

and secondary schooling. On the tax side of this problem, we must concur with Due that:

> By generally accepted standards of taxation, additional funds for the financing of education cannot, on any significant scale, be found in the local property tax, or in expansions of local non-property taxes, but from expanded state use of sales and income taxes, plus reliance on Federal income or Federal grants."[28]

Not only can the local property tax not be relied upon for additional resources, it should not be so expanded. Clearly, alternative tax sources must be established if education is to continue its successful contribution to growth and human development.

C. The Decisioning Process Does Not Allocate Resources in Accordance with Educational Needs.

In the United States there is widespread acceptance of the proposition that resources will be optimally allocated by the automatic functioning of a free market if: (a) purchasers are knowledgeable; (b) there are no significant externalities;[29] (c) markets are competitive; and (d) income is fairly distributed. Few would argue that all of these assumptions are valid for the educational industry;

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[28] Due, p. 325.

[29] An externality exists where decisions made by one entity effect the welfare of another, and where this influence is not reflected in prices. As an example of an "insignificant externality," consider that my family's welfare may be affected if my neighbor drinks contaminated water from a ditch, but I am not worried about this, given his income level and the low price of pure water. As an example of a "significant externality," consider that my neighbor's rabid dog might bite my children; given the price of a rabies vaccination, I fear that there may be some divergence between his preferences and mine and favor a law making such vaccinations compulsory. (Cf. James M. Buchanan and William C. Stubblebine, "Externality," Economica, November 1962). The term "spillover" is often used to refer to externalities among communities.

hence, there is general acceptance of government intervention, but considerable debate over the question of what sort of government intervention is appropriate.

1. The dilemma of centralization versus decentralization

It is convenient to view the debate regarding the nature of government intervention in terms of two polar positions. The analysis of these polar positions provides a framework through which to interpret some of the important developments which are, in part, responsible for the crisis. On one extreme is the "decentralist" view, which holds that:

(a) Consumers of education (parents on behalf of their children) are competent to make judgements about education (at least in terms of choosing a good school, if not in the details).

(b) Significant externalities are associated with the magnitude of schooling but not with particular directions of education. (i.e., there is a significant danger that a poor family would not provide sufficient education for its children, but if the financial hardship is removed, there is little danger that the family will choose educational programs which are not in harmony with the social interest--e.g., safecracking.)

(c) Competition in the schooling industry is economically feasible but precluded under the present arrangement which confers monopoly status on public schools; this status insulates the public schools from control by their clientele.

(d) Inequality of income distribution among families and communities is a major factor contributing to inequality of educational opportunity in the United States.

This "decentralist" view leads logically to proposals which allow for greater expression of individual preferences. For example, the voucher system in education is one major proposal for moving the system in this direction.[30] With slight modifications (to emphasize the community rather than the family as the best decisioning unit), it is compatible with an educational system composed of small, autonomous school districts supported by state or federal funds in a manner which eliminates financial inequities but avoids imposing state or federal controls.

At the other extreme is the "centralist" view which holds that:

(a) Children are not capable of making wise decisions about their education, and neither are most of their parents. Even elected officials may not be competent to make such decisions.

(b) Significant externalities exist among families and communities; they are associated with the nature of educational programs as well as with the overall magnitude. (E.g., there is significant risk that students migrating from one community to another will be ill-adapted to the latter because of deficiencies in the educational programs of the former; the deficiencies are not due solely to financial problems but arise in part from goal-divergence--e.g., a rural community provides rurally-oriented education which is not in harmony with urban needs.)

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[30] Judith Areen,...Christopher Jencks, et al., Education Vouchers, Preliminary Report of the Center of Study of Public Policy, March 1970 (ED 040265). Their proposal provides for controls against segregation and requires participating schools to meet minimal state requirements. It is possible to imagine a voucher system with more extensive controls, but these would defeat its main purpose.

(c) A monopolistic system of elementary and secondary schools is desirable because it permits economies of scale, overcomes the problem of consumer ignorance in education, internalizes externalities, and facilitates control of the system by professionals.

(d) The problem of inequality can be resolved by consolidating poor school districts with rich school districts.

The logic of the centralist view points to the desirability of a single, nation-wide school system, because the externalities (migration, etc.) do not stop at state lines. Most advocates of centralism do not press their arguments this far, and even the state-wide district has come into existence only in Hawaii. However, the influence of the centralist view is manifest in the myriad state laws which restrict the autonomy of local districts in the consolidation movement, and in the organizational structure of large city school systems.

The logic of the centralist view would be compelling except for the fact that the nature of the product makes it undesirable to rely on bureaucratic methods of control in the schooling industry. It would be relatively easy to nationalize the steel industry because it would be relatively easy for a national agency to specify the goals, communicate these to the plants, and measure the performance of the plants. This is not so in education, and the recent efforts to alter this provide no evidence that this obstacle will be overcome in the foreseeable future. It may be possible to state educational goals and to measure educational performance, but not in a manner which permits such information to travel down and up numerous

levels of hierarchy.[31] It is our conviction that public control over education cannot be effective unless it is imposed at a level reasonably close to the classroom, and in this sense we agree with the proponents of the voucher system: "We do not believe that it is possible to measure the most important effects of schooling, and we do not believe it is desirable to reward schools for producing relatively unimportant results."[32]

Given that there is substantial validity in both the centralist and the decentralist positions,[33] the above analysis explains why the existing organizational structure of education is such a hodge-podge of professional, local, and state control. That is, the current system has emerged out of the conflicting push and pull of the desire, on the one hand, for a system small enough so that consumers could reflect their individual preference for education (and thus be willing to support it by voting higher tax rates on their property) to, on the other hand, the push by school administrators and professional educators to increase the size of the school system to capture economies of scale and create a professional establishment that would protect the system from the whims of the public.

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[31] Wesley J. Yordon, "An Economist's Analysis of Accountability in Education: The National Assessment, the Colorado Assessment, and the Colorado Plan for Contract Accreditation," Research Reports in Educational Administration, Vol. II, No. 7 (University of Colorado, May 1971).

[32] Areen,...Jencks, et al., p. 47.

[33] In support of the view that externalities and spillovers are significant, see Burton Weisbrod, External Benefits of Public Education (Princeton, Princeton University Press, 1964). For an analysis of the extent to which these would disappear if all school districts were adequately financed, see Larry D. Singell and Wesley J. Yordon, "A Proposal for Design Alternative Incentive Models for

2. The current crisis: the development of large bureaucracies and the reaction

In the decade of the 1960's, advocates of centralism were quite persuasive. Hence, there were significant efforts at consolidation, and the number of school districts decreased from approximately 40,000 in 1960 to approximately 18,000 in 1970. However, a manifestation of the current crisis is the sharp shift in attitudes which occurred in the 1960's. Centralization, along with increasing numbers of students, resulted in school districts becoming very large "monopolistic" bureaucracies. Increasing numbers of teachers are now rejecting the concept that educational administrators are effective spokesmen for professional educators. Thus, membership in teacher unions (in both absolute and percentage terms) have increased remarkably.[34] It is significant to note here that organized teacher groups not only attempt to bargain in salaries but matters of school administration and curriculum control.

Although bureaucratization was favored by teachers until recently, it now may be seen as one of the forces contributing to the growing size and militancy of teacher organizations. Two significant factors in the current crisis arise out of these developments. First, the nature of the bargaining process in the public sector has produced difficult complications because it is much more tempting to see the "public purse" as unlimited. This phenomena may be one part of the explanation of the cost of education increasing faster in the recent period than progress in the private sector. Secondly, teachers have

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[34] From 1953 to 1969, national membership in the NEA doubled to well over one million members, while membership in the AFT tripled between 1961 and 1969 to a membership of over 150,000. Education Digest (Fall 1969).

bargained for district wide salary scales based only on experience and graduate credit (or some similar arrangement). This has created particularly difficult allocation problems for education. (The particular difficulties created by this development are treated in a following proposal.) It might be noted here that this has tended to: (1) increase the cost of education significantly because minimum salaries must be set at a level high enough to attract the scarcest resource; (2) dampen incentives for superior performance of teachers; and (3) further disadvantage the poor, because fixed and uniform salary scales make it more difficult for schools serving poverty youth to attract good teachers.

Increasing numbers of parents (and even children) are demanding greater participation in educational decision-making. It is not clear to what extent there is a genuine conflict between classroom teachers on the one hand and parents and children on the other, but it is clear that many people believe that the trouble with public education is that it is "efficient" only with respect to the goals of "educationists."[35]

Of course, the basic vehicle created to regulate and bring together the public preferences in education and the "professional" interest of the teachers and school administrators in the elected school board (or the appointed school board by an elected official). There is, however, persuasive evidence that those who have been

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[35] Some of the criticisms are directed at administrators rather than teachers, others at both. Our analysis is compatible with either interpretation of the word "educationist," but not with the proposition that educational efficiency could be improved by giving all decision-making power to teachers' organizations.

selected as representatives of the public interest are not able effectively to govern public school systems.

An advocate of centralism (and professionalism) argued in 1960 that "local control of education by laymen should be limited to peripheral and ceremonial functions."[36] It would not be much of an exaggeration to say that his goal had already been achieved in New York City Public Schools.[37] Joseph Pois (an eminently qualified observer) similarly describes the Chicago Board of Education as "more a facade for citizen guidance of the schools than an active and creative force in the administration of this vital public function."[38] (Pois' description makes it clear that size is not the only factor that inhibits board participation in important policy decision, and Norman Kerr[39] describes similar problems in two rather small school districts.)

Gittell and Hollander conclude their study of six urban school districts with the observation that "...public education...has over the years become perhaps the most nonpublic of governmental services. Public school systems have removed decision-making from the agents closest to the school child...the school professionals have convinced the various public interests that only they are qualified to make policy."[40] There is reason to believe that such a system is

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[36] Myron Lieberman, The Future of Public Education (Chicago, The University of Chicago Press, 1960), p. 162.

[37] David Rogers, 110 Livingston Street (New York: Random House, 1968), Chs. 8 & 9.

[38] Joseph Pois, The School Board Crisis (Chicago: Educational Methods, Inc., 1964), pp. 211-212.

[39] Norman Kerr, "The School Board As an Agency of Legitimation," Sociology of Education, Fall, 1964, pp. 34-59.

inherently unresponsive to shifts in public demands resulting from changes in tastes, needs, and values of individuals within society. Furthermore, this system may nurture an apparent tendency for professional educators to expound the necessity for "more of the same"; as opposed to their searching for methods of reallocating resources in an attempt to increase education efficiency. These observations are supported by the lack of technological innovation and the, at least superficially, shockingly constant mix of resource inputs over the last 50 years. (See Table 25 in the Statistical Appendix.) This constancy of input mix over a period of time in which the demands on education, our technical knowledge, and the aggregate level of resources devoted to education have changed significantly appears, a priori, to be the result of an inflexible, unresponding education sector. (See the proposals on Public Control Over Resource Allocation and Voting.)

3. Directions for change in school administrations

Given these circumstances, it is easy to understand why proposals for a voucher system as an alternative are likely to find a receptive audience, and we do not believe that all of the arguments against a free market for schooling can be lightly dismissed. The standard American model of school government appears to be very reasonable in the abstract, and we suspect that if we now had no experience with anything except a voucher system, the standard model would seem to be an attractive alternative. It is equally clear that some reforms of existing education government and basis of taxation are necessary. Furthermore, the changes must move in a direction that would bring about a substantial

increase in public control over resource allocation in education. Given the nebulous criteria for efficiency in education, such a change would be an increase in efficiency.

The increasing importance of migration and spillover effects will require an expanded base for financing education. We believe the national character of these movements will require a more expanded federal role in education (in our view, of the finance, but not necessarily the control). In addition, some structural changes in the process of resource allocation at the local level will be important to purposive change. Several proposals on this appear in a later part of this report (Alternative Voting System to be Tested and Evaluated) and (Federal Income Tax Deduction for Federal Registry Schools). Further, proposals for reshaping the form and function of public representation are also developed. (See Proposals to Improve Public Control Over Resource Allocation in Education.)

D. The "Product" of Education is Taking on New Meanings in the Affluent Society.

While it is beyond the scope of this report to treat in any systematic fashion the changing function of education in the modern society, it must be given some consideration. This is so, not only because the system's willingness and ability to serve this function has and will continue to effect society's willingness to finance education, but will also be crucial in the determination of the direction for change.

1. Emphasis on the quality of education has increased significantly.

It might be argued that the education system is currently in the midst of a third major revolution. The first was the quantity revolution in which an attempt was made to increase the number (and percentage) of students educated as well as the years of schooling provided to each child. The data presented in the first part of this report suggests that this revolution has been highly successful. The second revolution, the beginning of which might be dated with the Supreme Court decision of 1954 regarding school desegregation (Brown et al. V. Board of Education of Topeka et al., 347US483), was the equality revolution. While some progress has clearly been made in this direction, significant inequality of education opportunity still exists. (See Statistical Appendix, Tables 23 and 24.) The third revolution which is just now getting underway might be called the "quality" revolution.

Hence, while society was content with the efforts to "educate" large numbers of the school age population, now that the overwhelming majority are in school, attention has turned to the quality of education being provided. These revolutions are, of course, not unrelated. In some sense, the equality and quality revolutions may have directly and indirectly emerged out of the quantity revolution. The fact that the majority of the parents now sending their children to public schools are high school graduates (and a large percentage have some college training), has unquestionably led to more sophisticated "demands" being placed on the education system. One could argue, although with much less certainty, that increased education has also increased the "demand" for equality.

2. The development of a "youth culture" may effect the availability of financial resources to education.

In addition, some people have hypothesized the development of a "youth culture" as an indirect result of the quantity revolution. Some argue that the majority of the youth population attending school has resulted, for the first time in human history, in children growing up mainly with other children rather than with a more integrated age mix of the population. Whether this change in the socialization process did, or did not generate a new form of youth movement can be debated. It does seem clear, however, that some people view the new "life style" of the youth as a partial product of the schools. To the extent that this association between the education system and the generation gap is made, it will act to reduce the willingness of the public to financially support education. Thus, whether or not a youth culture is, in fact, developing; or would be desirable; or should be associated with education, is not relevant. The relevant question is whether or not society has made this association. This association of the youth culture with the education system seems to be having some effect on the willingness of society to support higher education, if not K through 12.

3. The expanded time available for leisure will require important adjustments in education.

There appears to be other life style changes which are affecting the function of the education system in fundamental ways. With improvements in the standard of living (which in part have come from increased education) the consumption aspects of education are becoming increasingly important. In short, the schools are being increasingly called upon to educate students not only to be productive in their work, but to utilize their leisure creatively.

Since this issue is being dealt with in detail in another part of this larger study (the Berkeley group), we will only observe that these factors may be affecting the willingness to increase resources to education.

On the other hand, it might be noted that to the extent that the education system does respond to the demand of education for leisure, businessmen may be increasingly reluctant to be taxed to support education. In addition, parents who have the "work ethic" as a vital element in their value structure may also resent, at least initially, resources being allocated for these purposes. Those people who find this change in education goals desirable, should nevertheless be aware that extensions in the practice of educating students for creative leisure may increase the difficulty of additional financial inputs.

4. The problem of education and social values

Another factor which cannot be treated in depth but has become an important factor in obtaining and using resources in education is the growing resistance to using education as a "social melting pot." While this may be fundamentally a social class problem, the issue currently focuses on the problem of the integration of the white middle class and ethnic and racial minorities. To the extent that minority groups see education as "schooling" in middle-class values, their resistance to extending resources to the education sector will certainly stiffen. On the other hand, there is a clear resentment, on the part of a large segment of those already holding middle class values, to attempts to bring the ethnic and racial minorities into their group. If the education

system is to be given major responsibility for the social melting pot function, it should be recognized that serving this function may well result in reduced public support.

Summary and Overview

It may be useful at the juncture to try to summarize some of the major observations made above. We have tried to document that:

(1) The education industry has had immense success on almost any criteria society would deem important, and if these achievements are lost sight of, numerous myths regarding the "failure" of the schools will lead to misguided efforts at purposive change.

(2) There is, however, a very serious "crisis" in the education industry which will require in some cases only minor "turning" but in other cases, fundamental alterations in the structure of educational administration and finance.

(3) While the factors perpetuating the crisis are too complex and interwoven within the total fabric of American society to be treated adequately in a report of this type, we have argued that some of the directions for restructuring the system must certainly consider the following:

(a) The current allocation of resources in education contributes to the rapid increase in cost by underspending in education research and development. While the gap has partially been filled by private research, the developmental aspects have been largely overlooked. The net result has been that education has been technologically less progressive than other sectors in the economy.

(b) The current system, by relying heavily on local property taxes as the major basis for revenue to support education, results in underinvestment in education and makes the task of achieving, or even approximating, equality of education opportunity impossible. In particular, the use of property

taxes results in a continually widening gap between education demands and the revenue base for financing these demands. The increasing mobility of the United States population makes the system of local financing of education less and less viable, and financing any individual's education on the basis of the taxable property of his neighborhood is becoming less morally acceptable.

(c) The development of large "monopolistic" bureaucracies in the education industry and the existence of large militant teacher unions have increased the likelihood that resources made available to education may be misallocated--that is, not spent in a way which will efficiently provide for individual and social demands. In particular, this structure distorts the flow of information regarding the true preferences of students, parents, teachers and school administrators. In addition, it distorts incentives to efficiently use scarce resources in the production of the education product.

(d) Increases in the standard of living, changes in social values and increased resistance to using education as a vehicle for "socialization" into the white middle class have become, if not new, stronger pressures for reshaping the allocation of education resources.

(4) Some important aspects of the crisis have been generated by the immense success of the education industry and failure to appreciate this, increases the danger of misguided change. In particular, it must be kept in mind that:

(a) The intense demands for improvements in the quality of education arise naturally from more highly educated parents. Thus, the education industry must be restructured to allow greater sensitivity to these more sophisticated preferences.

(b) The higher standard of living made possible by expanded education and training requires that education increasingly provide for a higher quality of life with respect to leisure and human development.

(c) The success of efforts to capture economies of scale through consolidation of school districts may have resulted, in some cases, in the creation of large bureaucracies that make it difficult for an efficient information system to function.

PREFACE TO THE PROPOSALS

The following set of proposals are designed to outline programs for experimentation. These proposed experiments were generated largely out of our analysis of the crisis in education, and thus must be reviewed in this context. We tried in our reviews of the literature on the problem of resource allocation in education to pinpoint areas in which change seemed warranted and necessary. Although our central concern was the problems associated with obtaining and using resources in education, some of the proposals overlap with other considerations. In addition, no effort is made to develop an integrated strategy for action. While this is clearly important, it seemed most reasonable to construct an integrated strategy for action in the context of the larger study.

While our review of the crisis in education suggested a number of possible experimental programs, the time constraint involved forced us to concentrate on a small number of possibilities. Hence, we chose to concentrate on the following five areas:

I. Income Tax Deductions As an Incentive System for More Equal Educational Opportunity

II. A Proposed Experiment in Voting Methods Designed to Improve the Level and Composition of Resources in Education

III. Proposals to Improve Public Control Over Resource Allocation in Education

IV. Collection, Evaluation and Dispersion of Education Information

V. A Proposed Program for Full-Costing of Higher Education

In addition, several other proposals which are not developed in detail, but must be considered as possible programs or research possibilities are presented.

Although the proposals presented may be treated as independent experiments--indeed, we tried to structure them in that way--in many ways they represent an integrated approach to what we see as the fundamental crisis. That is, they all involve efforts to:

(1) increase the information available to those responsible for resource allocation decisions.

(2) move the control of the system closer to the local level.

(3) increase the efficiency of resource use or the amount of resources available to education.

(4) Expand the contribution of the federal sector to the education effort.

In addition, several of the proposals (I and V) are aimed at moving the system closer to achieving equal education opportunity.

Abstract

Because of uniform pay schedules within a given district, "poverty" schools within the district are not able to compete on an equal basis with "middle class" schools for quality teacher inputs. We propose a Federal income tax deduction to superior teachers who are employed in Federal Registry schools. N.I.E. is asked to fund an experimental program implementing the above proposal. During this experimental program, we recommend the evaluation of alternative incentive schemes which would include sabbaticals and reduced teaching loads. Such an evaluation should measure the effectiveness of equal dollar expenditure on each of these three incentive schemes.

The establishment of district wide salary schedules based on teacher experience and education alone has produced a particularly difficult set of allocation problems in the education sector. First, it tends to exert significant pressure on overall teacher salary cost. This occurs because minimum salaries under this system must be set at a level necessary to attract the scarcest resource. That is, if Math teachers, for example, are in very scarce supply, market forces would tend to result in increased wage rates for this specialization. However, if only one salary schedule exists, Engligh teachers who may have been in surplus must also receive the same increase.

It might be noted here that a very significant part of the increase in expenditure on education in the recent past is due to increases in the salaries of teachers. For example, between 1965 and 1970, roughly 70 percent of the increase in expenditure per student in ADA can be attributed to teacher salary increases alone! While there are many forces which have produced this result, it is likely that some of these expenditures would not have been required, or for the current expenditure, more educational services could have been provided if salary inducements could have been offered to the most needed resources. In addition, this salary structure may also dampen incentives for teacher performance somewhat--i.e., if no distinction is made between the very effective teacher and the incompetent one who has equal experience; this could modify the willingness of the good teacher to make additional effort.

In addition to the distortions in the allocative mechanisms described above, this practice of a uniform salary schedule may

also further disadvantage students from poverty areas. Since these schools tend to be less desirable environments in which to teach, (i.e., they have inadequate supplies, more students with learning problems, etc., etc.) and since salaries are identical, there is some tendency for the more experienced (and perhaps more able) resources to migrate out. It is to this latter problem that our proposal addresses itself.

We propose that greater equality of educational opportunity would be promoted if the Federal government would allow some portion of the income earned in Federal Registry schools to be deductible for income tax purposes. For example, after subtracting all regular exemptions and deductions from a married or single teacher's income, an additional $5,000 could be subtracted before computing the tax payment. If after subtracting these normal deductions and exemptions, an individual with a taxable income of $8,000 will normally pay $1,380 in federal income taxes if married and $1,630 in federal income taxes if single. If allowed a $5,000 additional deduction, the individual will have a taxable income of only $3,000 which would result in a married filer's tax of $450 and a single person's tax of $500. Thus with such a scheme the married teacher would receive $930 in additional income and the single teacher would receive $1,130 in additional income. The accompanying tax rate schedules can be used to compute how various levels of "teacher deductions" would result in diminished tax payments.

Such a proposal is suggested as a way of circumventing the resistance experienced in the past to "combat pay" schemes. Under such an income tax method, teachers within a given district would

SINGLE PERSONS

If after deducting all normal exemptions and deductions, the single person's income is:

AT LEAST	BUT NOT OVER	THE SINGLE PERSON PAYS
$2,000	$4,000	$310 + 19% of excess over $2,000
4,000	6,000	$690 + 22% " " " $4,000
6,000	8,000	$1,130 + 25% " " " $6,000
8,000	10,000	$1,630 + 28% " " " $8,000
10,000	12,000	$2,190 + 32% " " " $10,000
12,000	14,000	$2,830 + 36% " " " $12,000

MARRIED PERSONS FILING JOINTLY

If after deducting all normal exemptions and deductions, the married couple's income is:

AT LEAST	BUT NOT OVER	THE MARRIED COUPLE PAYS
$4,000	$8,000	$620 + 19% of excess over $4,000
8,000	12,000	$1,380 + 22% " " " $8,000
12,000	16,000	$2,260 + 25% " " " $12,000
16,000	20,000	$3,260 + 28% " " " $16,000
20,000	24,000	$4,380 + 32% " " " $20,000
24,000	28,000	$5,560 + 36% " " " $24,000

NOTE: THESE FIGURES ARE FROM 1970 TAX RATE SCHEDULES

be on the same gross pay schedule; the differential would be in net pay received, or in the amount of income tax refund.

There have been several criticisms of "combat pay" schemes in the past, but the major criticism given is reflected in the following statement by David K. Cohen:

> ...The idea that, of itself, receiving more money effectively stimulates improved teaching has no basis. It seems dubious that children's learning could be improved by offering "combat pay" to attract teachers to, or hold them in deprived schools when, all other things being equal, the teachers prefer to be elsewhere. After all, it is the children who constitute the "combat" condition for which special pay is offered; utilization of such incentives would be a poor basis for a productive student-teacher relationship.[1]

With respect to the above quotation, we feel it is not necessarily the children which make such schools undesirable. It may be the conditions of the school; its facilities and/or its supplies, its neighborhood, or even the present quality of its instructional and administrative staff. Furthermore, we agree that increased pay probably would have no measurable positive effect upon a teacher's "teaching effort." However, we propose that such pay differentials will improve the quality of teachers which apply to these Federal Registry schools. We would also want the pay differentials resulting from this tax credit to be large enough so that the supply of teachers desiring to teach in these Federal Registry schools would exceed, or at least equal, their demand.

Again, we reiterate that we do not believe that such pay differentials will cause individual teachers to markedly improve their

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[1] David K. Cohen, "Policy for the Public Schools: Compensation and Integration," Harvard Education Review, XXXVIII (Winter, 1968), p. 125.

teaching effort. What this program must do, if it is to succeed, is to improve the quality of the teachers applying for positions in Registry schools. It is assumed that these above average teachers will retain their superior teaching skills in this new setting.

Various education studies relating education inputs to their effect on education outputs have shown that certain teacher characteristics have a great deal of influence on student performance. As an example, teacher verbal ability has been shown to have a strong positive effect on student achievement.[2]

In order to improve the level of teacher inputs in Federal Registry schools, a score in the top 1/2 or 1/3 on these verbal ability tests could be a prerequisite for this income tax credit. Additional teacher characteristics, such as teacher experience,[3] which are proven to be conducive to improved student performance could also be added as

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[2]See Samuel S. Bowles and Henry M. Levin, "The Determinants of Scholastic Achievement--An Appraisal of Some Recent Evidence," Journal of Human Resources, III (Winter 1968), p. 1-24; Jesse Burkhead, Thomas G. Fox, and John W. Holland, Input and Output in Large City High Schools (Syracuse, N. Y.: Syracuse University Press, 1967; Eric A. Hanushek, "The Education of Negroes and Whites"; and John F. Kain and Eric A. Hanushek, "On the Value of 'Equality of Educational Opportunity' as a Guide to Public Policy," Harvard University, Program on Regional and Urban Economics, Discussion Paper No. 36, 1968.

[3]See Bowles and Levin, pp. 1-24; Burkhead, Fox and Holland; and Samuel M. Goodman, The Assessment of School Quality, (Albany, N. Y.: New York State Education Department, 1959). NOTE: In an income tax credit proposal such as ours there is a built in incentive for the more experienced, higher paid, teachers to apply for this program. This results from the fact that the greater the income before the special deduction, the greater the actual tax savings.

prerequisites for such tax credits.[4] In this way, superior teaching inputs would be assured to these schools. In addition, the credit could be looked upon as a reward for superior teaching ability rather than for teaching in a stigmatized "combat pay" school.

Two additional refinements in such a system are possible. First, if the maximum amount of tax deductible income were set at a level sufficient to make the supply of "qualified" teachers greater than their demand; a differential income deduction could be created so that for a given dollar expenditure the greatest possible increase in quality teacher inputs would result. Under such a system, qualified History teachers might only receive $3,000 in deductions while certain Science teachers might receive more (or vice versa). Regardless of the acceptability of the above "differential" proposal, we also suggest the use of Citizen Advisory Boards for the purpose of selecting new teachers. When a position is open, all qualified bids would be taken. The Citizen Advisory Board and the school administration would then make the final selection. Such a board could take into consideration, for example, racial and ethnic factors, as well as years of teaching experience and the level of qualifying scores.

We propose that N.I.E. fund an experimental program to test the effectiveness of this type of incentive pay as a method of attracting higher quality teachers to Federal Registry schools.[5] While in

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[4] For an excellent summary of these studies and the variables that various researchers found to have positive effects on educational outputs, see: Martin T. Katzman, The Political Economy of Urban Schools, (Cambridge, Mass.: Harvard University Press, 1971). Pp. 42, 43, 120.

[5] Tax deductions could possibly be offered to administrators in Federal Registry schools. Such deductions could be based upon the improvement of achievement scores of their pupils.

the experimental stages, additions to gross pay rather than tax deductions would be used. These can be adjusted to see what dollar amount is needed to encourage teachers of a given quality to apply to these schools. Once this schedule is computed, it can be transformed into equivalent taxable income deductions.

During this experimental program, we strongly suggest that studies be undertaken to measure the effectiveness of other incentives. These would include reduced teaching loads, teacher expense accounts, or sabbaticals as alternative options to the tax deduction. If a teacher chose one of the former, N.I.E. would put the deduction money the teacher is giving up into a fund for the school to use in hiring the additional teachers that would be necessary because of the reduced teaching time required of this teacher. Finally, we strongly urge that when this project is funded, enough money is allocated as part of the project so as to enable a thorough analysis and evaluation of the results.

Finally, with respect to the practicality of such a proposal, there is some precedent to this form of federal incentive. At the present time, National Defense Education Act loans must be paid back in full over a ten year period once schooling is completed. However, if the recipient chooses to teach in any school or college, he may write off ten percent of the loan each year for a maximum of five years. He then pays the remaining fifty percent of the loan over the following five years. But, if the recipient of an NDEA loan chooses to teach in an elementary or secondary school listed in the Federal Registry, he may deduct fifteen percent of the principle each year up to the full amount of the loan.

II. A PROPOSED EXPERIMENT IN VOTING METHODS DESIGNED TO IMPROVE THE LEVEL AND COMPOSITION OF RESOURCES IN EDUCATION

Abstract

For the education sector to best serve society, the values and preferences of the community must be made a critical input into public decision making. Experimentation with alternative voting techniques may increase our knowledge of people's desires and increase community involvement in resource allocation between and within the private and public sectors. Furthermore, this involvement may not only improve the workings of the social sector but also reduce community resentment of and resistance to public sector expansion. That is, closer coordination between individual values and social choices may very well lead voters to choose a higher level of educational expenditures.

In spite of the apparent difficulties for administrators, extended use of the public vote provides an important weapon in the increasingly difficult fiscal wars being fought by the public system of education. At various times decisions within the social sphere are necessarily made by publicly elected officials, group elected officials (committees), appointed administrators, civil servants, professionals and many others who are more or less responsible to broad social interests and tastes. Campaigns, advertising, lobbying, logrolling, legal action, boycotts, protests and, regrettably, even intimidation are methods by which individuals or social groups attempt to alter these decisions. Discussions, interviews, written surveys and informal testing of attitudes or feelings are methods by which decision makers within the social sector attempt to determine social - ultimately individual - values. Ultimately of course it is the amalgam of these individual values which determines the optimal level and composition of public goods and services.

The basic problem facing decision makers within the social sector who would maximize social well being is to determine the nature of the individual values which comprise the ultimately desired set of social values. On the other hand, the basic problem facing the individual within our society is to find a mechanism by which he can reveal his preferences concerning the optimal level and composition of goods and services provided by the social sector. Within a system in which individual values have significance, no single person will have a set of tastes and attitudes concerning the provision of social goods which is perfectly representative of all other individuals. This suggests that decisions concerning the provision of public goods should be made

by the smallest possible unit judged to be significantly affected by those decisions. This allows individual decisions to be weighed more heavily in the decision making process and is consistent with President Nixon's recent statement made in relation to the education system that he is "determined to see to it that the flow of power... goes toward, and not away from, the local community."[1] Furthermore, the division of "communities" into smaller units for purposes of social decision making, provides individuals with a wider range of choice should they decide to "vote with their feet" by moving into an area where others have an evaluation of the optimal composition of public goods more consistent with their own.[2] The desirability of smaller districts is at some point offset by considerations of operational efficiency. With respect to education, the question of the optimal composition of services deals with such things as the student teacher ratio, technical aids and equipment, administrative composition and size, nature and extent of extracurricular activities, type of construction, clerical staff; and with such programs as english, chemistry, foreign languages, music, art and vocational training.

Short of moving to another district where the determined composition of public goods is more in keeping with his own preferences, an individual can attempt to reveal his preferences to those in the decision making structure. Voting is the generally accepted means of revealing preferences. Cultural and social values, political

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[1] From the President's Special Message to Congress on Education Reform, March 3, 1970, as printed in the New York Times, March 4, 1970, p. 28.

[2] Charles M. Tiebout, "A Pure Theory of Local Expenditures," Journal of Political Economy, LXIV, 5 (October, 1956), pp. 416-424.

principles, and our legal structure all point to voting as the ultimate means by which individuals register preferences and by which social decision makers attempt to determine these preferences. More complete information is potentially available through a public vote, and certainly the public vote provides a more general evaluation of individual preferences, than dependence on such things as discussions, interviews, advertising and protests. Voting is also to be preferred to moving as a means of expressing social preferences in the sense that moving is generally costly, and often impossible, due to social and economic constraints faced by the individual.

Furthermore, the theory of social choice suggests that individuals will choose to support public expenditures at a higher level when the composition of these expenditures more closely reflects their own preferences.[3] As indicated in sections C.2. and C.3. above, much of the present crisis in our public schools can be related to the feeling of noninvolvement in the decision making process and a growing frustration on the part of those who would affect this process. The argument for smaller size, so that the individual can identify with the decision making process and the resulting social preference pattern, is supported by empirical as well as theoretical evidence. A statistical study of the fiscal performance of 529 school districts concludes that "there is considerable evidence to suggest that the combination of public vote and relatively modest size (enrollment) is effective in maintaining the school districts economic performance."[4]

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[3]Richard A. Musgrave, Theory of Public Finance, New York, 1959, pp. 155-57.

[4]William S. Vincent, "Board Members, the Public and Fiscal Welfare of School Districts," TAR Research Bulletin, VIII, 1 (November 1967), p. 6.

BALLOT 1

Construction of a school at the cost of one million dollars to be financed by a - mil increase in the property tax.

(Change)	(Status Quo)
Yes _____	No ___X___

BALLOT 2

Construction of a school at the cost of one million dollars to be financed by:

	(Change)	(Status Quo)
a) a - mil increase in the property tax	Yes _____	No ___X___
b) a - percent increase in the city sales tax	Yes ___X___	No _____
c) a - percent surtax on the city income tax	Yes ___X___	No _____

reflected. The "more is better" syndrome without proper consideration of the optimal composition of educational inputs may be reflected in the surprisingly stable breakdown of relative inputs in education as reflected in Table 25 in the Statistical Appendix and section C.3. above. The absolute maximum concept may also lead its advocates to make what will be unkept promises with the resulting resentment and possible backlash.

ALTERNATIVE VOTING SYSTEMS TO BE TESTED AND EVALUATED

The first alternative voting system to be tested and evaluated differs from the present system mainly in the number of alternatives to the status quo on which the individual can reveal his preference. This might be characterized as a system of multiple choice voting (as contrasted to the present all or nothing choice which might be meaningfully characterized as a system of minimum choice).[8]

For example, under the present system, a given voter might be faced with (1) the choice of voting yes for a million dollar school financed by an increase in the property tax or voting no that the existing facilities must suffice. Now, consider facing this particular voter with (2) the choice of voting yes for a million dollar school financed by an increase in the property tax, or the sales tax, or the income tax. The alternatives facing the voter are indicated on ballots 1 and 2 below. This particular individual's

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[8]The concept of multiple choice voting is discussed within a broader framework by Knut Wicksell, Finanztheoretische Untersuchungen und das Steuerwesen Schwedens, Jena, Germany, 1896, pp. IV-VI, 76-87, 101-159. English translation: R. A. Musgrave and Alan T. Peacock (eds.), Classics in the Theory of Public Finance, "A New Theory of Just Taxation," J. M. Buchanan (trans.), New York, 1962, pp. 72-118.

values would lead him to vote against an increase in education expenditures when faced with Ballot 1. This voting process would have allowed him to reveal some part of his preferences to the decision makers in the public sector. It is likely that these revealed preferences would have been improperly interpreted as opposition to increased education expenditures.

When, and if, presented with Ballot 2, however, this voter would be able to reveal a preference for increased education expenditures and a set of values which brought him to reveal - when enabled to do so - an overriding objection to an increase in property taxes (see section A.2. in the Overview). Ballot 2, as compared to Ballot 1, might lead to social choice being more compatible with the individual's values (if b)or c) on ballot two won a majority); would increase the individual's feeling of involvement in the decision making process (regardless of the outcome); and increase society's knowledge of the individual's values and preferences (regardless of the outcome). Minority views could better be taken account of in the formulation of future ballot alternatives on the basis of preferences revealed on preceding ballots.

If any of the alternatives on Ballot 2 received a majority the indicated action would be carried out. If two or more alternatives received a majority, the alternative receiving the highest number of ballots would be chosen

Clearly the chosen level of expenditures might be considerably higher under a system of multiple choice voting in which the individual voter had the opportunity of opting for any combination of possibilities. It is highly unlikely, however, that expenditures

would fall as the result of multiple choice voting as compared to a system of minimum choice voting. For example, we would hardly expect a majority of yes votes on Ballot 1 and a majority of no votes on alternative a), as well as alternatives b) and c) on Ballot 2. The presently employed voting system constitutes a strong force against change by offering voters only a single alternative which different voters might oppose for a wide variety of reasons.

One further illustration will be used to show how a system of multiple choice voting might lead directly to an increase in educational expenditures. Given the alternatives represented on Ballot 3, a given individual would vote for a school costing one million dollars if it is financed by either an increase in the sales tax (Ib) or the income tax (Ic), while voting for a school costing one and a half million dollars only if it is financed by an increase in the income tax (IIc). Any number of expenditure proposals can be combined with any number of tax proposals limited only by the requirement of keeping the ballot manageable.

Plurality voting or unit ranking provides another alternative to the present voting system. This system is more familiar as it is often employed by voluntary social organizations. A similar system is also widely used to reveal preferences or evaluations in the judging of beauty contests and athletic events. Under this system the individual is asked to rank alternative choices in the order or preference. The winning alternative is chosen on the basis of the total score obtained by summing each voter's ranking of the available alternatives.

BALLOT 3

I. Construction of a school at the cost of one million dollars to be financed by:

	(Change)	(Status Quo)
a) a - mil increase in the property tax	Yes _____	No X
b) a - percent increase in the city sales tax	Yes X	No _____
c) a - percent surtax on the city income tax	Yes X	No _____

II. Construction of a school at the cost of one and a half million dollars to be financed by:

	(Change)	(Status Quo)
a) a - mil increase in the property tax	Yes _____	No X
b) a - percent increase in the city sales tax	Yes _____	No X
c) a - percent surtax on the city income tax	Yes X	No _____

The system of plurality voting is designed to reveal a broader range of the individual's preferences than is possible under the present system. By reflecting the entire pattern of individual preferences, the plurality system gives some weight to minority values. For example, consider the preferences of individuals X, Y, and Z for the alternatives (a), (b), (c), and (d) to be reflected by the rankings shown in the following table. Under the present mechanism of majority rule, alternative (a) would be chosen. Under the plurality rule, alternative (b) would be chosen. Use of the plurality rule would take account of individual Z's strong opposition to alternative (a) - ranking (a) last - and the relatively weak preference of both individuals X and Y for alternative (b) over (a) - ranking (b) first and (a) second.

		ALTERNATIVES			
		(a)	(b)	(c)	(d)
INDIVIDUALS	X	1	2	4	3
	Y	1	2	3	4
	Z	4	1	2	3
(TOTALS)		(6)	(5)	(9)	(10)

In this case, weighing of minority views would alter the outcome that would have resulted from the use of majority rule. The plurality voting system could also be designed to simply allow individuals to reveal a broader range of their preferences to the decision makers within the system. That is, alternative (a) might be chosen on the basis of the majority rule even though voters are given the opportunity to rank various alternatives. While not altering the

ultimate decision rule, this would allow further decisions on the education system, and the choice of alternatives to be placed on future ballots, to take account of a broader range of individual preferences.

While the plurality or unit ranking system of voting is more revealing of individual voter attitudes, it does not permit the voter to reveal the intensity of his feelings. Unit ranking is quite satisfactory or complete when the individual is faced with a continuous set of alternatives. This is also true when the discontinuous set of alternatives facing the voter are separated by a consistent differential in that voter's preference structure. Plurality voting is less satisfactory, however, when differences in value associated with any two consecutive alternatives are widely separated. It would be interesting to know for example by what margin individuals X and Y preferred alternative (b) to alternative (a) in the illustration above.

A point voting system would allow individuals to reveal the intensity of their feelings. For example, each voter might be given one hundred points which he could allocate to the various alternatives in relation to the relative weight that each carried in his preference function. The following allocation of points would be consistent with the above rankings of individuals X, Y and Z of the alternatives (a), (b), (c) and (d).

		ALTERNATIVES				
		(a)	(b)	(c)	(d)	Total
INDIVIDUALS	X	30	28	20	22	100
	Y	80	10	6	4	100
	Z	15	32	29	24	100
TOTAL		125	70	55	50	300

With a point voting system, alternative (a) would again be chosen over alternative (b). This results from individual Y's strong preference for his first choice (a) over his second choice (b). On the other hand, if individual Y had a preference structure similar to that of individual X, alternative (b) would be chosen over alternative (a) even though both X and Y would have a slight preference for (a) over (b). The total points for alternatives (a), (b), (c) and (d) under these conditions would be 75, 88, 68 and 69 respectively. Here point voting would lead to the same social ranking of alternatives as plurality or unit voting.

There are obvious difficulties with the point voting system as a means of reflecting the preferences of individual voters. We have assumed that people would, in fact, rate alternatives in a fashion which reflects their true preferences. The possibility of voter strategy has been disregarded. This may be unreasonable, however, in the case of point voting. For example, if Y has the same preferences as X, it would be to his slight advantage to misrepresent these preferences and allocate his one hundred points as shown above. While strategy becomes potentially important under a system of point voting, its significance is reduced as the number of voters involved increases. That is, Y's one hundred points out of a total of three hundred provides him with a considerable incentive to use strategy in allocating his votes. As the number of voters increases, however, the possibility of Y being able to affect the final outcome by misrepresenting his preferences is reduced.

CONCLUSION

There are, of course, certain educational decisions which must be left to professional educators and administrators. For example, the optimal location of a new school requires knowledge of projected population growth and changes in population density. Such information might not be generally available nor easily interpreted by the average voter. Recent information on such matters as teaching techniques, school architecture, curriculum developments, and technological innovations are difficult enough for professional educators to stay abreast of and to evaluate. The need to obtain and interpret projected manpower needs is insufficiently met by educators themselves. These are all questions of the best means by which certain educational goals can be met. It seems certain, however, that the public vote can be more effectively employed to help determine the set of goals to be pursued by the educational system. If the society which is being asked to support the education system is to do so willingly and generously, we must continue to look for better means of determining what it is that society would have that system accomplish. This is not meant to suggest that education should not work to alter values and tastes (although this may be damaging to fiscal performance), nor that professional educators should be stripped of decision making power within the social sector; but only that more consideration be given to the set of goals and preferences of the society which the education system is designed to serve--and in which it must exist. In order to give more consideration to broad social goals and preferences we must know more about them.

III. PROPOSALS TO IMPROVE PUBLIC CONTROL OVER RESOURCE ALLOCATION IN EDUCATION

Abstract

With the exception of some large-city school districts the organizational structure of public school government appears to be reasonably sound, so there is reason to pursue the question of whether the effectiveness of this structure might be improved. It seems likely that a major cause of ineffectiveness within the existing structure is to be found in outmoded state laws governing public education. It seems possible that another cause of ineffectiveness stems from a pervasive attitude within the education sub-culture which emphasizes that only educators are qualified to make educational policy. (Bureaucratization may be viewed as a manifestation of this attitude, and apathy toward school board elections as a consequence of bureaucratization.) Of these interrelated causes of ineffectiveness, the problem of state laws is the easiest to identify, and we propose N.I.E. sponsored work sessions to examine it. However, if the "sub-culture hypothesis" is correct, such laws may be only one of many barriers to effective public control. Hence, we see the "legal work sessions" as a starting point for exploration of some less tangible factors associated with attitudes of school board members and superintendents. Four related suggestions are also listed.

A Preliminary question: Is it desirable to have public control over education? It may appear that an affirmative answer would be widely accepted, but our analysis (see II. C.) leads us to conclude that an affirmative answer implies that public control at the local level should be increased. Stated in this form, the proposition is controversial and runs counter to views which were generally accepted prior to the 1960's. We are here dealing with a policy question rather than a research question, but it may be helpful to mention some factors which tend to justify a shift in position on this issue.

In the past it could be plausibly argued that in many communities professional educators were better representatives of the public interest than the elected representatives of the public because of defects in the electoral process, such as disenfranchisement and/or political apathy of minorities, disproportionate representation, etc. Court decisions and other events in the 1960's make this argument much less plausible than it was previously; it is not easy to cast a teachers' union in the role of defender of black children when it is negotiating with a school board composed of their parents.

In the past it could be plausibly argued that education was desired as a means to an end, namely economic growth. Given this view, questions about educational programs are essentially scientific --the expert decides whether instruction in mathematics or biology will contribute more to economic growth. In part because of the rapid economic growth in the 1960's the desire for growth has dwindled, and many families now view education partly as an end in itself. This shift in viewpoint reduces the role of expertise.

The above remarks are intended to be suggestive rather than persuasive; the question of the desirability of public control over education involves broad value judgments which are not dealt with here. If effective public control is desired, our analysis suggests that the following measures are worth considering.

1. Investigation of the desirability of Citizens' Advisory Councils for individual schools.

   Such councils could work mainly with the school principal; only in case of serious conflict would it be necessary to appeal to higher levels. They could be effective instruments of public control if the school board supports them when appropriate and if the principal is given some flexibility. Their effectiveness would be enhanced if they could participate in school budgeting (see item 2), and such participation would help produce public understanding of the problems involved in meeting educational needs with limited resources.

2. Investigation of the desirability and feasibility of budgets for individual schools.

3. Investigation of the effects on educational efficiency of bond and budget referenda.

Suggested hypotheses: (a) The need to obtain voter approval is a healthy influence on efficiency because it pressures school districts to invite public participation and scrutiny. (b) The need to obtain voter approval is detrimental to efficiency because voters--many of whom have little interest in schools--are asked to give a yes or no vote on complex issues such as construction programs and budgets which are understandable only to professionals and well-informed laymen. (c) The need to obtain voter approval is detrimental to efficiency because it pressures school administrators and board members to spend inordinate amounts of time as "salesmen," and they are therefore unable to give proper attention to other important matters. (d) The need to obtain voter approval is detrimental to

effective communication from the community to the school system because it pressures school employees and board members to be defensive about all aspects of the system, with the result that they cannot listen attentively to criticism.

Methods of investigation: survey of literature, comparative studies, interviews. Purpose: to provide support for proposed financial reforms.

4. Program to provide education for citizens about their local school system.

N. I. E. could provide short courses for citizens to enable them to learn about the organizational structure, instructional program, budget, of their local school system, relevant state laws, etc. The instructor should be knowledgeable about the local system but not employed by it. Tuition might be charged but waived for low-income participants. For an example of the nature of the material which might be covered, see Ellen Lurie, How To Change the Schools: A Parents' Action Handbook on How To Fight the System (New York: Random House, 1970).

5. A program to increase the effectiveness of school boards

Section II. C. pointed out that the existing structure of educational government is basically sound but there is some evidence that in practice school boards do not govern. We are unable to pinpoint the cause of the difficulty but suspect that a number of related factors are involved. Accordingly the proposed program described only the starting point in detail, with suggestions for further development contingent upon initial experience.

The first step is N.I.E. sponsored work sessions for school board members and superintendents in various geographic areas containing six to twelve districts. The announced purpose of these sessions would be to discuss the effects of state laws on local districts focusing on those which are thought to impede effectiveness.

In advance of the sessions, N.I.E. would arrange for participating boards to make videotape recordings of their meetings, including some interaction with the public. N.I.E. would send representatives (preferably with skill in human relations) and provide lawyers as consultants; these might well be school attorneys, but arrangements should be such as to mix participants from different districts.

Explanation: Many school laws were enacted when districts were small and may now be dysfunctional. Court decisions like Serrano vs. Priest may cause substantial reform of school laws, so now is an opportune time to formulate recommendations on non-financial issues as well. In particular, we believe that teacher-tenure laws need to be re-examined in light of the events of the 1960's. Although theoretically such questions fall within the province of state departments of education and state associations of school boards, it appears that N.I.E. could perform a useful role as a change agent by stimulating discussion, gathering information from a number of states with different laws, and formulating recommendations to guide state legislators.

A specific question to be explored is the extent to which state laws impede the effectiveness of school board meetings by forcing the board to deal with routine administrative matters such as teacher appointments. (If public participation is desirable, it ought to occur at the building level. See item 2.) This would implicitly be an

exploration of the validity of allegations that some superintendents keep school boards occupied with trivia so as to prevent them from "meddling" in important issues. (In the face of teacher militance, superintendents logically should side with the board, but due to cultural lag, some superintendents may still be operating in a manner which was stylish in the early 1960's.) This issue need not be met head on; participants would learn from videotapes and through discussions with board members, superintendents, and attorneys from districts other than their own. Quite possibly, much of the problem is the fault of board members; if so, observation of the videotapes might cause substantial change.

Second, employ human relations specialists to examine the videotapes of school board meetings, including interchange with public. On the basis of this information plus reports from N.I.E., participants in the initial work sessions decide whether further sessions are appropriate, possibly in the area of human relations training (not sensitivity training) for superintendents and school board members to reduce defensiveness and increase listening skills when dealing with the public. Board-superintendent relations might also be treated.

Third, (if appropriate), publish a handbook for school board members if studies reveal that those supplied by state departments of education and school board associations fail to tell it like it is.

References in support of the above proposal

Joseph Pois, The School Board Crisis: A Chicago Case Study (Chicago: Educational Methods, Inc., 1964), pp. 42-171.

Roscoe C. Martin, "School Government," in Alan Rosenthal, Governing Education (Garden City, N. Y.: Anchor Books, 1969), especially pp. 278-282.

David Rogers, 110 Livingston Street (New York: Random House, 1968), pp. 222-232, 240.

Lawrence Iannacone, Politics in Education (New York: Center for Applied Research in Education, 1967), pp. 6-29.

Exhibit A

(Note by W. Yordon: Of the fairly extensive literature about School Boards which I have read, I find little which rings true in terms of my experience as a board member. Pois' book is exceptional. It is my impression that much of the literature on school government is written within the framework of what Roscoe Martin refers to as "the public school mythology." The awkwardness of the proposals above, results from my belief that it is necessary to penetrate the veil which this mythology imposes, and that the problem with school government is not just the existing structure of state laws, but also something in the education subculture. Some quotations from Martin may help to indicate the nature of the quarry.)

From Governing Education, ed. Alan Rosenthal, pp. 278-280, 281-282.

> ...For the development which over the course of a century closed the doors to intruders, produced powerful professional associations, generated a pride in workmanship, eventuated in confidence in and respect for calling - these same developments were accompanied by secondary effects which in the aggregate produced an advanced spirit of bureaucracy. Profession and bureaucracy achieved realization side by side among the public school teachers.
>
> Evidence to support this conclusion is not far to seek. A brief flashback into public school history will disclose its nature. Early there was the central assumption that public education is a unique function of government. From this single basic proposition has grown the elaborate mythology with which the public schools are surrounded today: that public education, being a unique public function, must therefore be accorded separate and special treatment, that it is dangerous for the public school to be associated with any other public undertaking, that the schools must have nothing to do with general politics, that the schools are both the prime exemplar and the chief champion of democracy. They

Exhibit A (continued)

can be elaborated at any length, but these major tenets will suffice to recall its central nature. It will be understood that what is here called mythology is not mythology at all to those who profess it, but sound and tested doctrine instead. The mythological origins of the doctrine are in truth all but lost in the mists of history, though its heavy freight of tradition attests its uncertain beginnings and its experimental development.

Four bureaucratic progeny of the public school mythology may be singled out for brief mention. First is the reverence for form, at whatever expense to substance. This reveals itself in deep respect for procedural rules, affection for familiar things, and suspicion of innovation. Second is the brisk defensiveness which flows spontaneously from sensitivity to criticism. This state of mind arrays the schoolmen, as the defenders of the public school faith, against the critics, even the sympathetic critics, who are regarded almost uniformly as attackers. This leads inevitably to the we-they dichotomy: we who defend the public school vs. those who seek to destroy it. Third is the bland assumption of professional rightness, manifest in the invocation of tradition, and in a priori reasoning -- the assertion of firmly held beliefs as facts. Fourth is the homogenized character of the practitioners -- their common origins, their uniform (and well night universal) belief system, their uncommon loyalty and dedication to the pursuit of common goals. The principal instruments in the homogenizing process are the teachers colleges and the university departments of education, and after these the professional associations.

A comparison product of the long road to profession is a well-trained, seasoned bureaucracy with a universal body of doctrine and a firm commitment to its observance and expansion. If the teaching profession has not yet achieved the monolithic qualities of medicine or the law, it is nevertheless well along the way toward attainment of that professionally enviable status.

The traditional role of the superintendent, the chief of the public school's professional staff, has changed in two important respects in recent years. It might be more accurate to say that increased understanding enables us to see the superintendent's role more clearly and more realistically than it was perceived three decades ago, and that increased understanding has brought with it a new appreciation of two important aspects of that role. First, the superintendent has emerged during the last few decades as the leader rather than the servant of the school board. His is no journeyman's job, and he is no handyman merely to do the bidding of the board once policy has been established. On the contrary, he is at least as much a policy maker as he is a manager in the narrow sense; for he enjoys an expertise, a professional reputation, and a community position which combine to give him an almost irresistible voice in school affairs.

Exhibit A (continued)

Alan Rosenthal has made a significant study of this subject. He divides school issues into two categories: esoteric, which, being professional or technical in nature, have a narrow-audience appeal, and exoteric, which, being more broadly political in nature, have a wide-audience appeal. The former we may call internal (school-centered), the latter public. Regarding internal issues, Rosenthal found the influence of the superintendent to be truly overwhelming; except in extreme circumstances, it simply does not occur to anyone to question his recommendations or his actions. Concerning public issues his influence is less in evidence but scarcely less effective; for he defines the issues, proposes acceptable alternatives (and rejects those not acceptable), provides ammunition for the school spokesmen, and in the end implements the decisions reached. Rosenthal concludes that "school matters are and probably will continue to be the special preserve of the educational experts. Their pleas of impotence, notwithstanding, the educators run America's schools." (Alan Rosenthal, "Community Leadership and Public School Politics: Two Case Studies," (Princeton University, unpublished Ph.D. dissertation, 1960). The passage quoted appears at p. 498.

. . . The emergence of a powerful leader in the person of the superintendent has brought with it a concomitant decline in the position of the school board. There is a reciprocal relation between administrator and board which tends to ensure that as one grows in stature the other will diminish. Passing by any possible adverse effect of this trend on democratic government, the bureaucracy views it with equanimity. To both administrators and teachers, but more especially to the former, it signifies the professional coming-of-age of the superintendent along with acceptance by the board of the fundamental role of expertness in managing the affairs of the schools. The superintendent is happiest when he is working with a tame board; he has one increasingly as he consolidates in his hands more and more responsibility for policy leadership within the board and public representation without.

. . . Classroom teachers are not to be compared with superintendents for surface influence -- for the weight of their voice in determining high policy, for arguing that policy before the school board, for expounding it, before the public. Yet their role is not to be minimized, for they have a significant part to play in school government. For one thing, they comprise an overwhelming percentage of the school bureaucracy and so through dint of sheer numbers yield great influence. They constitute a bulwark of support in any school political campaign. They are the principal link between the superintendent and the board of education on the one hand and the school patrons on the other. Through their relations with the Parent-Teacher Association they have a regularized channel of contacts which for the superintendent and the board must be chance and intermittent. As bureau-

crats, they close ranks behind the superintendent for the furtherance of educational policy and the solidification of public school doctrine.

It is the classroom, however, that they exert their greatest influence. Here the student learns that the schools are sacrosanct, that any criticism of public education is an attack on the foundations of the republic. Here he learns, too, that government (particularly city government) is a sorry business and politics unclean. It is in the classroom, in short, that the antidemocratic freight of the school-men's doctrine makes its greatest impact on the young citizen. The destructive consequences of this antigovernment attitude could have been foretold with complete assurance; unhappily, they are now a matter of record. They are to be seen in citizen ignorance of public issues, in absence of interest in public affairs, in failure to take part in the democratic process, in scorn of government and contempt of politicians.

EXHIBIT B

(From Joseph Pois, The School Board Crisis, pp. 216-7)

APPENDIX II:
AGENDA FOR MEETING
OF THE BOARD OF EDUCATION
HELD JANUARY 11, 1961

Unfinished Business

Report No.	
68582	Acquire for School Purposes the Real Estate Located at the North East Corner of W. Bryn Mawr and N. St. Louis Aves., containing 13,535 Square Feet.
68617-M	Extend Driver Education Program.
68636	Acquire for School Purposes the Real Estate Located on S. Phillips Ave. between E. 92nd and E. 93rd Sts., containing approximately 31,375 Square Feet.
68652	General Superintendent's Report of Repairs and Purchases and Salvage Sales Not in Excess of $5,000.00 for the Month of November, 1960.

Reports Presented by the General Superintendent of Schools

Report No.	
68661	Award Teachers' Certificates, etc.
68662	Teacher Personnel Report.
68663	Authorize Employment of Evening School Teachers, Vocational School Teachers and Americanization Teachers.
68664	Appoint Additional Special Project Staff.
68665	Appoint Additional Special Project Staff.
68666	Authorize Social Centers and Social Activities in Schools.
68667	Authority to Purchase Perishables for Lunchrooms and Purchases in an Amount Less than $5,000.00.
68668	Authorize Purchase of Various Items of Supplies, Materials and Services.
68669	Accept Bid-Purchase Agreement-Towel Service-Sundry Schools and Office Services.

68670 Accept Bids. Purchase Agreement. Fresh Fruit Juice Drinks. Sundry School Lunchrooms.

68671 Accept Bids. Purchase Agreement. Vinyl Coated Drapery Material. Bureau of General Maintenance and Repair. Shade Division.

68672 Accept Bids. Purchase Agreement. Fiber Glass Drapery Material. Bureau of General Maintenance and Repair. Shade Division.

68673 Issue Orders. Crackers and Cookies. Sundry School Lunchrooms and Stadiums.

68674 Issue Orders. Butter and Eggs. Sundry School Lunchrooms.

68675 Issue Orders - Money Transport Service - Sundry School Lunchrooms, Stadiums and School Offices.

68676 Issue Orders - Linen Supply Service - Sundry School Lunchrooms and Stadiums.

68677 Issue Orders - Ice Cream - Sundry School Lunchrooms and Stadiums.

68678 Issue Orders - Ice - Sundry School Lunchrooms and Stadiums.

68679 Accept Bid - Purchase Agreement - Projection Lamps - Div. Visual Education.

68680 Accept Bid - Miscellaneous Trucking Service for 1961 - All Department.

68681 Accept Bid - Purchase Agreement - Glass - Sundry Schools.

68682 Accept Bid - Service Agreement - Package Delivery Service - Div. of Visual Education - Bureau of Office Services - Bureau of Purchases' Book Requisition Section.

68683 Accept Bid - Purchase Agreement - Limestone Screenings - Sundry School Sites.

68684 Accept Bid - Purchase Agreement - Oxygen and Acetylene - Sundry Schools and Shops.

68685 Accept Bid - Purchase Agreement - Electric Lamps

(et cetera)

IV. COLLECTION, EVALUATION AND DISSEMINATION OF EDUCATION INFORMATION

Abstract

Much of the existing statistical information on the education industry is inconsistent, irrelevant, and not readily available to the interested researcher. These problems arise out of the lack of a theoretical model which would identify and relate the inputs and outputs of the education industry. In order to facilitate additional collection, evaluation, and dissemination of education statistics, we propose that funds be allocated for research in developing a formal theoretical framework for the education industry similar to the National Income Accounts of the United States economy.

A formal theoretical framework which specifies the significant social and economic indicators of growth and development in the education industry would allow for the efficient collection, evaluation, and dissemination of information necessary for effective decision making involving the future growth and development of this increasingly important sector of our economy. Without some sort of framework, several problems arise when attempting to draw conclusions based on a vast body of discontinuous and informally organized statistical data. Upon completing primary research concerning the acquisition and allocation of educational resources, we have observed that raw data dealing with the education industry is characteristic of the problems which arise from collecting data without a formal theoretical framework.

Much of the raw statistical data on education is collected by the National Center for Education Statistics. This information is the primary data base for the publications of several organizations other than the National Center.[1] Although a great deal of the information is the same there is some variance in the actual statistics. For any individual statistic the variance is minor, however numerous differences throughout these sources of information force the researcher to question the consistency of the data, and the significance of changes in various statistical information. Some of the inconsistency between these studies arises out of different accounting techniques. For example, one report may include librarians under administrative staff, while another counts librarians along with teachers. One study of the statistical inconsistency in education

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[1] Rankings of the States, 1971. Research Division, National Education Association, SA.

data indicated that these variances may range from ten to forty percent.[2] The decentralized character of the education industry also gives rise to the necessity of collecting data at the state and district levels increasing the possibility of data inconsistency caused by differing accounting techniques.

When dealing with questions of equity and efficiency in obtaining and allocating education resources, the researcher is not only interested in the variation in expenditures between states but in the variation within states and within districts. While much of this data may exist, it is not readily available to the interested researcher. In the case of within district variation, this information appears to be virtually nonexistent. Although it is useful to note the difference between expenditures per pupil in Mississippi and in New York, it would probably be more valuable to know the variance in expenditures per pupil between two schools within a school district.[3] These indications of gaps in the data base arise out of an economist's approach to the problems of education. If one includes others who are concerned with the development of the education industry, the information gap must surely widen. Educators, sociologists, psychologists, legislators, superintendents, school boards, taxpayers, etc., all have their biases in the types of information necessary for effective decision making.

There is a basic problem concerning the collection and organization of existing education statistics. A significant amount of

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[2]Conclusion of an unpublished study done by the National Center for Higher Education Management System.

[3]NCES is attempting to gather data in this area.

state and district data is compiled by state and local governments, and private organizations. Much of the data which filters to the national level has been worked into aggregate form, while (after looking at NCES publications) other information does not appear to reach the National Center. Without going through a long and involved process of search, it appears to be virtually impossible to obtain information of relationships existing within states and districts. The National Center attempts to get some local statistical information directly through sampling techniques, i.e., sampling 20 school districts in the twenty largest cities in the U. S. Such research appears to be a step in the right direction.

Even if the resources devoted to gathering education statistics were unlimited, increased education data within the existing framework will only enlarge the size of the problem. What is necessary in this area is not so much to increase the quantity of data, but rather the quality of the statistical information.

In order to remedy what appears to be statistical chaos, we propose that research be conducted with respect to the possible development of a theoretical framework which will allow for more efficient evaluation, collection and dissemination of education information. What the education industry needs is a set of education accounts which develop key social and economic indicators of the directions in which the industry is moving as a whole. Prior to the establishment of the National Income Accounts for studying the gross national produce, the organization of empirical data made primary research dealing with the U. S. economy a cumbersome and frustrating task. Much of the necessary data existed but was not organized on the basis of an overall theoretical framework. The establishment of the National Income Accounts by Simon

Kuznets provided the necessary organizational structure for statistical information providing the basis for consistent ordering of long-run data. The National Income Accounts have taken a vast body of raw economic data characteristic of a complex industrialized economy and have organized this data in a way which allows the researcher to observe the overall growth of the economy as the outcome of the development of individual economic sectors.

Part of the reason why a theoretical framework has not been formulated for the education industry arises out of the difficulty of measuring educational output. What does the education industry produce? There is no doubt that the education industry improves the quality of the labor force. This improvement is reflected in the increasing output of the private sector. However, from the economic point of view, how do we isolate the growth in private sector output attributable to the education industry?[4] Even if we had a precise measure of education's contribution to gross national product, those responsible for producing education will indicate that increasing productivity is but one of several goals of the education industry. Along with the cognitive goals of the system, there is increasing concern with respect to the identification and achievement of affective goals.[5]

Any serious attempt to formulate a theoretical framework for the education industry must first isolate what are the key factors necessary for evaluating the success or failure of the education system. A first

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[4] Previous work in this area has been done by Becker, Weisbrod and others.

[5] Research in the measurement of affective as well as cognitive goals is currently being conducted by Professor Mushkin at Georgetown University through a grant provided by the National Center of Educational Statistics.

step would be to ascertain what information those involved in the education sector would need in order to identify possible distortions in education. This would involve a sampling of educators, legislators, superintendents, school boards, etc., in order to determine the type of information necessary for effective decision making. It is possible that much of this data already exists, but it is also important to determine the gaps in the data base as seen by those who are forced to make decisions based on existing information.

Once the education indicators are identified and developed within a larger theoretical framework, collection, evaluation and dissemination of education information is of primary concern. The collection of education data should be administered by the National Center, which should set down specific guidelines for the data necessary to complete the education accounts. Basic data would be gathered at the local level and passed on to the National Center. As a result of the theoretical framework, only the most significant information will be collected, thus increasing the efficiency of the National Center which is required, of course, to work within the constraints imposed by a limited budget.

Funds released by no longer collecting and duplicating unnecessary data may be channeled into increasing the responsibility of the National Center for evaluation and dissemination of education information. An invaluable service of the federal government has been their analysis and evaluation of the state of the economy based on the national income statistics. Publications such as the Survey of Current Business provide a useful interpretive data source.

Focusing on specific aspects of the national income statistics in various issues of this publication, over a period of years, allows for continuity and consistency in the presentation and evaluation of the state of the economy. A possible National Center data source could be "A Survey of Current Education." After a few years, education statistics would exhibit a similar degree of consistency as national income statistics.

In addition to providing a reliable data source, "A Survey of Current Education" would enhance the availability of education information. Although this publication would come from the National Center, several regional information centers could be established whose primary responsibility will be the dissemination of region information (along with the collection of data for the National Center).

Recognizing the problems involved in interpreting existing education statistics gathered without a formal theoretical framework, research should first be concerned with putting the education accounts in order, followed by a specific proposal dealing with the operational problems of collection, evaluation and dissemination of education information.

V. A PROPOSED PROGRAM FOR FULL-COSTING OF HIGHER EDUCATION

Abstract

Full-costing of graduate and undergraduate education in conjunction with a liberal loan policy is recommended. Full-cost price is rationalized in terms of efficiency, equity, consumer choice and savings of state tax revenue.

The liberal loan proposal calls for granting of long-term loans up to 40 years--unsubsidized loans sponsored by participating state governments from their current allocation to higher education. The repayment of the loans would be administered at the Federal level, through the income tax system with the income returned to the state.

The benefits of such a proposal will be to reduce the state's financial commitment to higher education, while maintaining its level, to allow lower income, high ability groups to continue their education, and to give private institutions a much needed financial boost.

There appears to be a smaller divergence between the social and private benefits in higher education than in elementary or secondary education; however, the difference between the private costs and social costs for higher education seem significant. Currently, society pays a large part of the direct costs of higher education while a large part of the returns accrue directly to the individual in the form of higher earnings, greater consumption, enjoyment of leisure, etc. On the other hand, expenditures on higher education are likely to be below the optimal level, because the community within which the education expenditure takes place would expect some of those whom they invest in to migrate the community, therefore losing the benefits of this investment.[1]

The student should be willing to bear the full cost of his higher education since it is the student who receives the benefits (consumption or income gains) from education. Of course, the benefits do not accrue to the individual immediately, but rather they accrue over his lifetime. Since human financial capital markets are imperfect, then it is difficult for students to obtain loans to invest in themselves since they have no collateral; non-optimality occurs unless some financial arrangements can be made. We propose money loans through the states to anyone wishing to pursue higher education, and that these loans be paid back through the Federal income tax system. One obvious advantage of this system would be that it provides the possibility of greater resources being available to finance elementary and secondary education where there is a greater divergence between private and social benefits and costs.

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[1]Weisbrod, "Geographic Spillover Effects and the Allocation of Resources to Education," in Margolis, ed. Public Economics.

Necessary Research

The major objections to full-cost pricing of undergraduate and graduate education and the extent to which their validity would modify the proposal must be considered.

The major reason given for keeping tuition low has been that there are externalities associated with undergraduate and graduate education[2] which would not accrue to the society without the state subsidizing the cost. These externalities are such things as: helping students find careers; improving citizenship; reducing crime; providing leadership; subsidizing occupations which pay below wages and salaries in relation to comparable occupations; improving home care and training of children, etc.[3]

As one reviews this, or even the expanded list of externalities, it is difficult to see how they would differ in terms of what the external gains which the standard high school education is alleged to generate.[4] This is not to say these gains do not exist; there may be some marginal gains of undergraduate education of the type described

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[2]Because of time constraints, we will limit our discussion only to instructional costs, not to costs which would be attributed to research and development or other activities carried on by a university which are not related to instruction.

[3]This is a partial listing from H. Bowen, "Finance and the Aims of American Higher Education," in Financing Higher Education, M.D. Orwig, ed. (Iowa City, Iowa: American College Testing Program, 1971). Hereafter cited as FHE. He argues against the position taken here in the above article and in "Tuitions and Student Loans in the Finance of Higher Education," U. S. Congress, Joint Economic Committee The Economics and Financing of Higher Education in the United States, 91st Congress, 1st session, 1969. Hereafter cited as JEC.

[4]The possible exception to this line of argument is the increase in economic growth generated by education, but this increase may be obtained in a more efficient manner. See R. Bolten, "The Economics and Public Financing of Higher Education: an Overview," in JEC, p. 34-38, for a complete discussion of the externalities associated with higher education.

which no one, to our knowledge, has attempted to measure or even determine if they do occur.[5] At this juncture, it appears that the burden of proof is on those who feel these externalities exist, and in addition, to show that higher education is the most efficient way that these social goals can be produced by the society.[6]

Advantages of Full Costing

Currently, many of those receiving the benefits of the education subsidies can afford to pay for their education, but attended the state universities because they are under-priced in comparison with the private institutions. A recent study found that if tuitions were lowered at public institutions, relatively more students from the upper SES (Social Economic Status) than from the lower SES would be attracted to these institutions.[7] In other words, the higher income groups substitute public for private education when the relative price is lower, but the lower income groups are still not in a position to take advantage of this saving.

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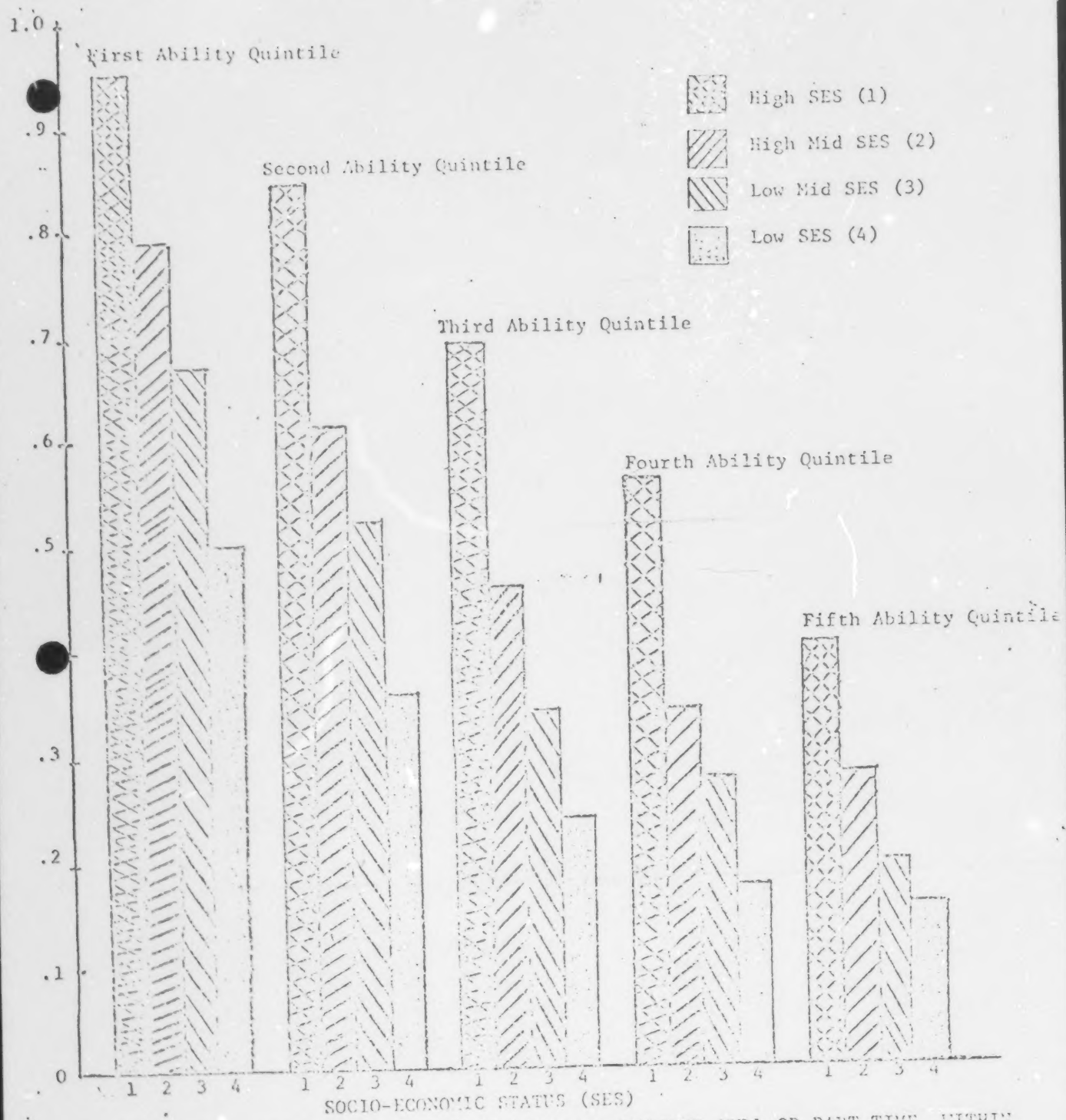
[5] M. Orwig, "Summarizing the Issues," in FHE, p. 336. P. Feldman and S. Hoenack, "Private Demand for Higher Education," in JEC, p. 393. This would be an interesting area to which to apply benefit-cost analysis. If it were found that the social gains did outweigh the social costs, this would lend support to the belief that undergraduate education should be subsidized, but only to the extent that the private benefits and costs diverge from the social benefits and costs. The authors find it hard to believe that this difference is currently measured by the level of subsidy which now takes place at state colleges and universities throughout the country.

[6] E.g., it has often been adjudged that education will reduce the cost of crime to the society. Ribich, Poverty and Discrimination (Brookings Institute, 1969), showed that the benefits of crime reduction are negligible compared to the cost involved in achieving this goal through education. He was dealing with elementary education and the figures were rough and ready, but it points out the problem involved with accepted externalities. That is, there are many methods by which to achieve a particular goal, but until one knows how effectively one is reaching a goal through a specific measure, he had better tread lightly. See W. L. Hansen and B. Weisbrod, "A New Approach to Higher Education Finance," in FHE, p. 132, for an interesting discussion of this point.

[7] Feldman and Hoenack, op. cit., p. 394.

FIGURE 1



PROBABILITY OF HIGH SCHOOL GRADUATES ENTERING COLLEGE, FULL OR PART TIME, WITHIN 5 YEARS OF HIGH SCHOOL GRADUATION, BY ABILITY AND SOCIOECONOMIC STATUS

Source: Berls, Robert H., "Higher Education Opportunity and Achievement in the United States," JEC, p. 150.

It is a common misconception to assume that students with high ability will be able to attend institutions of higher learning with little or no difficulty because of the low tuition, loans and scholarships. This is simply not the case. Studies have shown that while a relatively larger share of the higher ability groups in the lower SES group attend colleges, the population attending is still very much lower than those in the highest income groups with similar ability rankings. A summary of some of these findings from the Project Talent Data is presented in figure 1,[8] where for example, the highest SES in the fourth ability quintile (lowest 40% to 20%) still has a higher probability of attending college than individuals in the highest ability quintile (100% to 80%) in the lowest SES.[9] There is some evidence to suggest that the reason potential students do not attend college is they cannot afford the cost. In addition to the high ability students who do not attend because of moderate income or the inability to borrow, some students may be forced to leave while making satisfactory progress because of financial difficulty or may have financial problems which create an academic situation that forces them out of the university.

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[8]The graph is adapted from R. Berls, "An Exploration of the Determinates of Effectiveness in Higher Education," in JEC, p.,150, who took his data from the Project Talent. For additional evidence in the relationship between the incidences of college attendance and income distribution, see C. Jencks, "Social Stratification and Higher Education," in FHE, Hansen and Weisbrod, "A New Approach," and W. L. Hansen and B. Weisbrod, "The Distribution of Costs and Direct Benefits of Public Higher Education: The Case of California, Journal of Human Resources, Spring, 1969.

[9]For a counterview, see H. Bowen, in FHE, p. 160, although he does not present a strong analytical case and no empirical case.

The argument usually advanced for low tuitions and public institutions is that the poor-but-able will be enabled to attend is inconsistent with data on SES and enrollment. Instead the individuals who benefit from the subsidies to education are precisely those individuals who could pay the cost, particularly if a liberal loan system existed. Thus, full-costing of higher education would shift the burden of the cost from those who, through the regressive nature of the tax system that finances these institutions (see section B.2. d.) to those who receive the primary benefits of this subsidy.

Full costing of education in combination with loan scheme would promote the existence of much wider range of the schools from which prople could choose. This would eliminate the dual price system between private and public schools, with the result that the continued existence of private schools may be encouraged. In fact, this may be critical to their existence since the differential in public and private tuition has been increasing in the last 15 years.[10]

The opening up of a more active competition between the public and private institutions of higher education would probably result in benefits to both groups.

Misallocation of resources is less likely to occur with full costing of higher education. The student will not tend to over-invest, by spending more time at the university than is optimal. The society saves the direct cost of the entire education and the indirect costs of the lost productivity of the student. Further, because the students would be paying the full cost of their

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[10] M. Clurman, "Does Higher Education Need More Money," in JEC, p. 629, and ff. for a fuller discussion of the dual price system in education.

education, it is very likely to create pressure on the schools to produce more efficiently.

On the other hand, the amount of the subsidization given to the university under the present scheme may be below optimal if the region expects those whom it educates to migrate from the area.[11] In fact, this would explain, in part the rationale for the distinction between in-state and out-of-state tuition at public colleges and universities under the assumption that the in-staters are more likely to remain in the state than out-of-staters after the completion of their education. This under investment by the state may tend to counter the student's tendency to over-invest in his education. The precise outcome is not determinate because we do not know the magnitudes involved. This is the nature of the problem of a quasi-public good. Full-cost pricing would eliminate this difficulty.

Receipt and Expenditure Structure in Higher Education

Tuition accounts for approximately 13 to 21 percent of the income of public colleges, depending on whether auxiliary enterprise of the institutions are included. For private institutions, the comparable figures are 30 to 53 percent. The bulk of the remaining funds for public schools are obtained through state sources, 40 to 55 percent while private institutions only receive .1 to 2.0 percent from this source. The total sources from all governments, excluding organized research, is between 50 to 72 percent for the public institutions as compared with 5 to 8

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[11] Weisbrod; if Weisbrod's thesis is correct, it would argue for more national assistance at every level for those states that have a significant amount of out migration.

percent for the public institutions as compared with 5 to 8 percent for the private institutions.[12]

These sources, of course, do not account for all of the sources of funds, but they indicate the nature of the changes which would take place if the proposed full-cost pricing of college education would take place. Because of the diversity of sources of funds without this plan, careful consideration should be given to competitive disadvantages to public institutions under a full-cost plan produced by endowment funds, private gifts, and similar items which would be available to the private schools, but not as readily available to the public school. Currently, public institutions receive 3 percent of their income from endowment earnings and gifts while private schools receive from 16 to 24 percent of their income from these sources.[13]

Current expenditure per student is about $1,477 for private institutions as compared with $1,161 for the public institutions. Expenditure per student is higher in private institutions than in public institutions.[14] In general, the universities spent more than 4-year colleges and both spent more than two-year colleges. In the full-cost scheme proposed here, tuition should cover this cost, plus the studen't share of the capital costs. In addition,

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[12] R. Bolton, JEC, pp. 16-17. All estimates are for 1965-1966. The variation is due to the inclusion or exclusion of auxiliary enterprises, such as cafeterias, dormitories, etc., as part of the income of the institutions.

[13] Bolton, p. 17.

[14] Bolton, p. 19. This does not mean the student in the public institution receives an inferior education, because there may be economies to scale in the public institutions.

this cost should not be averaged over several institutions say, in the state as some authors have proposed, but rather should be calculated institution by institution, or at the very least by the type of institution; i.e., two-year, four-year, university.

THE LOAN PROGRAM

Current Loans and Grants

The argument for loans rather than grants follows from the previous arguments. The student who benefits should be the student who pays. If grants are given, there will be a tendency to over-subscribe to unneeded education by the students receiving the grants.[15] In addition there is not the incentive to produce with grants and subsidies that would exist if they had to finance the full cost of their education.

Today, loans and scholarships are made on a selective basis; the applicant must usually prove both need and ability in order to secure the loan or grant. One study found, paradoxically, that loans and grants tend not to get to the SES groups who need them most, that is the lower SES groups with very high ability.[16]

The Proposal

Loans should be made available to anyone desiring them in an amount to cover the full cost of tuition, books and other expenses, plus a portion of the opportunity cost; that is, the income the student forgoes because he is attending college. The "need criterion" can be avoided by charging the current rate of interest on the loans. It is important that the

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[15] One of the authors heard repeated complaints while at the City University of New York that the only time the student receiving grants would come to the college is when he had to pick up a check. The same complaints were heard from instructors in a special program at the University of Oregon. This could be an area of investigation which has been over-looked. In most evaluations of compensatory programs that we are aware of researchers have not examined the relation between grade point average and attendance and the latter variables relationship to the type of financing of the students' education.

[16] D. Segal "'Equity' versus 'Efficiency' in Higher Education", JEC, p. 143.

interest not be subsidized by the government, which would tend to cause distortions in the market, and raise the objections of subsidization which we discussed earlier. However, the interest charges may vary over the terms of the loan, depending on the prevailing market. This would allow for uniform repayments.[17] This would avoid questions such as the determination of who is an emancipated minor, what should be the parents' "proper contributions," etc.

The term of the loans should be long enough not to impose an undue burden on the lendee, e.g., 25 to 35 years.[18] Obviously, not everyone receives the same gains from the investment in education, but we do not feel this is a reason for pooling the debt of all those who borrow money, as some people have proposed.[19] There appears to be no cogent reason why an individual should be penalized for making an above average income for his education level by absorbing the risk of other people's loans. (This is not to say that people who make below the average income level for their education should not have their debt subsidized to some degree. See the discussion below.) However, we would suggest that a minimum income be attained by the borrower before the loan must be repaid.

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[17] Recent literature in the area of index linked interest rates may be applied here. See "Index-linked Loans: Part II" Monthly Review, November 1971, Federal Reserve Bank of Kansas City.

[18] See Robert W. Hartman, "Loans for Students", FHE for debt levels associated with various terms, interest rates, and repayment plans. The Carnegie Commission has recommended loans up to 30 or 40 years.

[19] E.G., W. Vickery, "A Proposal for Student Loans," in S. Mushkin (ed.), Economics of Higher Education (Washington, D.C.: Department of HEW, 1962.)

In order to build the fund quickly and to have those whom the benefits accrue to early in their careers, the loans should be paid back at a rate which is progressive with increases in income. This could be handled as, say, a one percent surtax on the current Federal Income Tax.

Although the loans would be given by the states, the Federal Income Tax should be used to collect the loans. This would have the following advantages: the administrative apparatus is readily available; a surtax insures progressive repayment; with a minimum income level before repayment begins; migration of graduates would not have to concern the states; and it would minimize the problems connected with non-repayment.

All people do not receive the same income benefits of education. For example, Paul M. Siegel[20] has shown that the blacks earn significantly lower returns for every education level than male whites. This is undoubtedly due to discrimination. In order to avoid placing an undue burden on an individual who earns below the average return because of discrimination or other reasons, we suggest that the loan automatically terminate after a given number of years.[21] Some number of years after "the average" individual would have paid back the loan. For example, if it were expected that the average earnings of the white male would enable him to pay back

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[20] See Paul M. Siegel, "On the Cost of Being a Negro," Sociological Inquiry, 35, no. 1 (Winter, 1965), 41-58. Also, Giora Hanoch, "An Economic Analysis of Earnings and Schooling." The Journal of Human Resources, II, No. 3 (Summer, 1967), 311-323.

[21] Some people may object to this provision having in mind the "hippy" or the alike who would not use his education once he received it, but we view the number of individuals in this category as negligible.

a loan within 25 years all loans in this category might terminate after 30 years.[22]

Full-costing of higher education will make the decision as to whether or not an individual should invest in education, his own, and to some extent that individual will have to absorb the risk of whether or not it will pay off. But it seems clear that the student is in a far better position to judge this risk than is some second party who would make the decision. For the second party can easily make judgement errors. The two most important ones being either investing in someone who does not succeed or not investing in someone who would succeed. In both cases, the society loses. Either the direct money outlays in the first case, or unutilized potential in the second.

Loans should be given by the state. In the standard financial markets, the potential student would be unable to secure a loan for the reason that the financial institution would not want to bear the risk that (1) the student might earn below average income for his educational status or (2) he might not repay the loan and the bank cannot take back the investment item (i.e., education) to obtain some of its money. The student is unable to offer himself as collateral because of the laws against involuntary servitude. But the primary compelling reason that public loan facilities are advocated is the unique nature of human capital. With physical capital, if a profitable opportunity exists for investment,

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[22] For a discussion of this concept, see A. Danyére, "The Benefits and Costs of Alternative Federal Programs of Financial Aid to College Students, JEC, pp. 581-583. For alternative loan schemes also see R. Hartman, and J. Zacharis, "Educational Opportunity Through Student Loans: An Approach to Higher Education Finance", JEC and A. Danyére. See also Charles C. Killingsworth, testimony to the United States Senate on Employment of Manpower, September 20, 1963. Also, How to Pay for Higher Education, Presidential Address to the Economic Society of Michigan (1967), mimeo.

one person may be turned down by the bank for a loan to invest in it; however, because the investment is profitable, the investment will be made by someone. It will not be lost to society. This is not true of human capital. If a person is unable to secure a loan in himself, this potential for the society is lost forever and the society is that much poorer for its decision.

The funds for the loan program could come from the current allocation made by the state to the public colleges and universities in the state. Because the tuition would cover the full cost of instruction the colleges and universities would no longer need this allocation. It is doubtful whether all the money currently allocated to the colleges would have to be used for the loan fund. Weisbrod and Hansen estimated that for Wisconsin, the state would save between 38 and 28 million dollars through such a scheme.[23]

These are only the initial gains which would accrue annually. There would also be the additional gain of funds returned from the borrowers in later years, which in turn could refinance additional generations of students. This gain could be estimated by examining the rate of return to education for the potential borrowers.

Effects and Implications

The most obvious effect of the proposed system would be that it would free resources of the state not only initially, but increasingly throughout the years for uses in other important educational areas, some of which are indicated in the body of this report.

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[23] PHE, op. cit., p. 130. Their proposal differs from the one considered here, but their figure can serve as a guide to the cost of such a program. They advocate full-cost pricing with grants to those that cannot pay. They do not consider the effects on graduate study.

One may expect a shift away from the public institutions to the private institutions with this change in policy as the Feldman and Hoenack study points out.[24] However, this change would be ameliorated by two forces: relatively more lower income students may begin to attend colleges and these students, for geographic reasons, would tend to enroll in public institutions, and private institutions would not have the facilities to handle a rapid change in demand for seats. One would expect that the long run effects to be the growth of private institutions relative to public institutions.

Demand may shift between institutions in different states; however, this problem could be handled through the admissions office, although again it may have long-run implications. The input mix of the student would probably be more heterogeneous after implementation of the proposed policy. The most serious effect one must consider before implementing this plan is the change in demand for both public and private higher education. If a significant change is produced in either direction, particularly for a decrease, allowances should be made to alleviate the strain on the institution during the interim.

Other considerations of such a full-cost-liberal loan policy should be investigated before its implementation. Questions such as "Should different areas or subjects be charged differentially because of cost differences?" "Should lower division students be charged less because the cost is lower (and incidentally, where the university system generally determines who are the poor academic risks)?" "Should counselors in high school be trained to provide information to the students on the returns to higher education?", etc.

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[24] See Feldman and Hoenack, p. 383-389.

Summary

The evidence indicates that the initial impact of a plan of full cost pricing of higher education in conjunction with a liberal loan program would be to provide a saving to the state. These initial gains would be expected to grow annually. The additional gain of funds returned from the borrowers in later years could be used to refinance additional generations of students. This gain could be estimated by examining rates of return to education for potential borrowers. Such a plan would contribute to an increase efficiency and the equity of the educational system, both internally and externally.

Problems the Program Addresses

That resources allocated to students of low socio-economic status (SES) in public elementary and secondary schools are clearly inferior in quantity, quality and diversity has been clearly documented. (See for example James Guthrie, et. al., Schools and Inequality). An area of even greater inequality in education and training, however, exists at the pre-school level. A high and increasing number of middle and upper class families send their 3-5 year old children to pre-schools, while almost none of the low SES families do. Thus, some effort might be made to at least move in the direction of closing this gap. Numerous factors may justify such action. Several important considerations are:

(1) Countless studies show that the early years are most important in shaping a child's ability and attitude toward learning.

(2) Some of the current and proposed poverty programs would be facilitated if mothers were free to work.

(3) Some of the more successful pre-school programs for poverty children have the important by-product of the training of parents.

(4) The scale of most pre-school programs is generally small enough to bring about a closer association between parents, teachers and children which may increase the willingness to finance increased educational effort.

(5) Attempts to achieve complete district equality in elementary and secondary expenditures may result in a reduction of effort in the public sector as affluent parents substitute private expenditures. Hence, more equality may be realized by some combination of greater equality in expenditures combined with special programs to improve the educational opportunity of the disadvantaged.

(6) The current surplus of teachers may increase the likelihood that such a program will succeed, as well as providing employment.

II. Previous Research and Development in the Problem Area

Although a great deal has been written on alternative approaches to nursery and pre-school programs (see for example Handbook on Formative and Summative Evaluations of Student Learning by Bloom, Hastings, and Madaus.) very little work has been done on alternative pre-school programs for the disadvantaged. The Head Start program represents a unique experiment in this direction, but more work is certainly required in this area.

III. Program Description

A. Goals and Objectives

(1) To create greater educational opportunity.

(2) To experiment with alternative pre-school education models for the disadvantaged.

(3) To provide better link between some of the parents of the disadvantaged and the school system.

(4) To examine increased work effort (labor force participation changes if pre-schools are made available.

B. Definition of the Program

It is proposed that several alternative pre-school models be tested in a particular city or group of cities (or regions) where there is a specific effort to evaluate alternative concepts of pre-school education and various input mixes of parents, para professionals, and learning aids. Furthermore, one or more of these pre-school units should be carried out in the elementary school setting where the follow through in to kindergarden and elementary grades is possible.

CRITICAL RESEARCH NEEDS

The following are some of the areas that represent gaps in the existing literature. We would like to urge N.I.E. to fund a large number of Ph.D. dissertations and post-doctoral fellowships in these areas. At a relatively small cost it may be possible to build a knowledge base that will make education programs more effective.

1. Research in the area of learning behavior seems most needed. Clearly no useful theory on the learning process exists.

2. The study of the school as a community. The future may require that "instant" communities be developed in the school setting. Given the rate of change in migration, this time may not be too far off. Unless this research is done, the school system will not be prepared to perform this function.

3. An examination of the recent and historical voting behavior on bond issues could provide important insights.

4. A study of production function in education which utilizes longitudinal data, as well as output measures in both the cognitive and affective domain seems particularly promising and represents a real "gap" in the literature.

5. A study of the effects of the elimination or changes in tenure arrangements in public education seems particularly important at this point.

6. No systematic study defining education output exists. Can this gap be filled?

7. A study which integrates the contributions of physical and human capital to aggregate economic performance could be useful.

8. Several issues in manpower planning will need some attention, e.g., occupational advising, surplus of college graduates and Ph.D.'s in particular fields.

9. A study of the implications of increasing leisure time on educational curriculum, school attendance, and resource allocation in education is also in our opinion, a high priority study.

10. Re-examine the role of the property tax in light of the recent California Supreme Court decision. (This is probably being done in Washington now.)

11. Overview the results from the various performance contracting experiments as a basis for future policy in this regard.

12. A study of the role of teacher unions in educational spending and output determination.

13. See attached note on "Critical Unknowns in Equalizing Resources to Education: A Research Proposal.

CRITICAL UNKNOWNS IN EQUALIZING RESOURCES TO EDUCATION: A RESEARCH PROPOSAL

I. Critical Problems to be Addressed by Research

Upon review of the literature on equalization, (in particular: 1. Schools and Inequality by Guthrie, Kleindorfer, Levin, and Stout; 2. Rich Schools, Poor Schools by Arthur Wise; 3. National Education Finance Project; and 4. Private Wealth and Public Education by Coons, Clune, and Sugarman) we find the following questions unresolved. Furthermore, meaningful programs in achieving equalization will require some investigation of these issues.

A. What differences in expenditure are consistent with equal educational opportunity?

1. Economies of scale
2. Price differentials
3. Environmental factors
4. Socio-economic background of students and district
5. Exceptional students

B. Do not the current federal government programs promote inequality? (Conflicting views on this subject exist in the literature: see Guthrie et. al. and NEEP Volume 5, for examples.)

C. What leverage does the Federal government have for achieving equalization under alternative schemes, and what effects will these alternatives have on educational outcomes? Has the Federal government established priorities for alternative taxation possibilities if the property tax is eliminated as the basis for supporting educational outlays?

D. Is there any meaningful way to define effort in financing education at the district level, particularly if the property tax is maintained?

E. If complete equalization occurs for districts within a State, to what extent should the Federal government equalize expenditures for education between states?

II. The Urgency of Solving These Problems

A. The California Supreme Court decision of August 31, 1971

B. Numerous other court cases in various cities and states pertaining to the constitutionality of present educational financing programs.

Note: These cases may bring forth a radical change in the very near future, both in the financing of education and the relative dollar expenditure per pupil. Answers to questions I.A. through I.E. will then be most needed.

II. (Continued)

C. In reference to questions related to I.A., the unequal purchasing power of the dollar may be most actue in poverty areas where there is a particular crisis resulting from:
   1. The relative educational disadvantage in such areas appears to be worse than ever before.
   2. Education may be a particularly effective way of alleviating unemployment, delinquency, etc. in the long run.

D. Difficulties presently experienced in educational funding, may be based upon the regressivity of the current taxation program and not upon dislike of the actual educational programs.

III. Research Strategy: The nature of the complex questions raised above will require the assemblage of a multi-disciplined team. Possible members would include a lawyer, an economist, an educational psychologist, and a sociologist.

STATISTICAL APPENDIX

List of Tables

Table No.	Title	Page No.
1	School Age Population and Total and Percent of Enrollment for Elementary and Secondary Education in the United States	1
2	Specific Age Population and Enrollment for Higher Education in the United States	1
3	Public High-School Graduates as a Percent of Public School Ninth-Graders Three Years Previous	2
4	Total U. S. Illiteracy Rates and Selected State Rates	3
5	U. S. Vocational Enrollment	4
6	Manpower Development and Training Act Program--Enrollment, Completions and Employment	4
7	Enrollment of Exceptional Children in Special Programs: 1948 to 1966	5
8	U. S. Educational Instructional Staff and Pupil/Staff Ratios	6
9	Pupils per Teacher in Public Elementary and Secondary Schools	7
10	Public Elementary and Secondary Schools--Percent Distribution of Classroom Teachers, by Experience and Degrees Held: 1964 and 1969	8
11	Total and Current Expenditures per Pupil in ADA in Public Elementary and Secondary Schools, U. S. - Selected Years	9
12	Total Public Elementary and Secondary Education Expenditure by Level of Government and Total per Pupil Expenditure	10
13	Total Public Higher Education Expenditure	10
14	Total Public and Private Education Expenditure and Percentage Share of GNP Spent on Education	10
15	Results of Public School Bond Elections: United States, 1957-58 to 1968-69	11
16	Nonresidential Property Taxes as a Percentage of Money Income before Taxes in Various Studies	12

Table No.	Title	Page No.
17	Property Taxes Paid on Owner-Occupied Single-Family Houses, 1959-1960, by Income of Owner	13
18	Estimated Property Taxes Paid on Renter-Occupied Non Farm Housing, 1959-1960, by Income of Renter	14
19	Elasticity of Demand for Public Elementary and Secondary Education with Respect to GNP	15
20	The Role of the Property Tax, 1962	16
21	Percent of Revenue for Public and Secondary Schools from Federal, State, and Local Sources	17
22	Government Sources of Revenue for Elementary and Secondary Education-Historical Trend	18 and 19
23	Personal Income, 1969, Related to Estimated Expenditures for Public Elementary and Secondary Education	20
24	Estimated Expenditure per Pupil in ADA in Public Elementary and Secondary Day Schools 1969-70	21
25	Summary of Expenditures for Public Elementary and Secondary Education, by Purpose: United States, 1919-20 to 1967-68	22

TABLE 1

SCHOOL AGE POPULATION AND TOTAL AND PERCENT OF ENROLLMENT FOR ELEMENTARY AND SECONDARY EDUCATION IN THE UNITED STATES

(1,000's)

Year	1930	1950	1968
Total School Age Population	31,417	30,168	51,584
Elementary			
Secondary			
Total School Age Population Enrolled	25,678	25,111	43,891
Elementary	21,279	19,387	31,642
Secondary	4,399	5,725	12,250
Percent of Total Population Enrolled	81.7%	83.2%	85.1%

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 1, p. 26.

TABLE 2

SPECIFIC AGE POPULATION AND ENROLLMENT FOR HIGHER EDUCATION IN THE UNITED STATES

(1,000's)

Year	1930	1950	1968
Population 18-24		16,076	22,787
Enrollment		2286.5	6928.1
Percent Enrolled		14.2%	30.4%

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 87, p. 110.

PUBLIC HIGH-SCHOOL GRADUATES AS A PERCENT OF PUBLIC SCHOOL NINTH-GRADERS THREE YEARS PREVIOUS

	1962-63[1]	1968-69[2]
Low		
1.	87.5 (Cal.)	93.4 (Minn.)
2.	85.5 (Minn.)	91.0 (Hawaii)
U.S.	72.7 (U.S.)	78.8 (U.S.)
High		
1.	57.4 (N.M.)	67.4 (N.C.)
2.	56.8 (Ga.)	65.7 (Ga.)

Rankings of the States, 1964. Research Division, National Education Association. Research Report 1964-R1, Table 33, p. 25.

Rankings of the States, 1970. Research Division, National Education Association. Research Report 1970-R1, Table 48, p. 28.

TABLE 4

TOTAL U.S. ILLITERACY RATES AND SELECTED STATE RATES

Year	1900	1930	1960
Percent Illiterate			
U.S.	11.3	4.8	2.4
Alaska (High)	40.0	20.5	3.0
Iowa (Low)	2.7	.9	.7
Louisiana (High)	39.6	15.1	6.3
Nebraska (Low)	2.6	1.3	.9

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 13, p. 34.

TABLE 5

U.S. VOCATIONAL ENROLLMENT

Year	1930	1950	1968
Total Number of Students	981,882	3,364,613	7,533,936
Number of Students in Non-Agriculture and Non-Home Economics Training	618,604	1,169,272	4,398,440

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 42, p. 66.

TABLE 6

MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAM
--ENROLLMENT, COMPLETIONS AND EMPLOYMENT

Year	1963	1968
Enrollment Opportunities	59,200	229,900
Enrollment	34,100	241,000
Completions	20,100	164,200
Obtained Employment	16,100	127,500

Source: U.S. Bureau of the Census, Statistical Abstract of the United States: 1970. (91st edition.) Washington, D. C., 1970. Table 204, p. 133.

TABLE 7

NO. 168. ENROLLMENT OF EXCEPTIONAL CHILDREN IN SPECIAL PROGRAMS: 1948 TO 1966

(In thousands. As of February, except as noted. Prior to 1963, excludes Alaska and Hawaii. Pupils are reported according to the major type of exceptionality for which they are receiving special education)

TYPE	1947-1948, school year[1]	1958[1]	1963			1966 (est.)		
			Total	Local public	Residential[2]	Total	Local public	Residential[2]
Total	378	890	1,682	1,570	112	2,106	1,979	127
Visually handicapped	8	12	22	14	8	23	15	8
Deaf and hard of hearing	13	20	46	29	17	51	33	19
Speech impaired	182	490	802	802	([3])	990	990	([3])
Crippled and special health problems	40	52	65	65	([3])	69	69	([3])
Emotionally and socially maladjusted	15	29	80	31	[4]49	88	32	56
Mentally retarded	87	223	432	393	39	540	495	45
Other handicapped conditions	11	12	22	22	([3])	33	33	([3])
Gifted	21	52	215	215	([3])	312	312	([3])

[1]Excludes private residential. [2]Public and private. [3]Excluded in survey.

[4]Includes education programs in public hospitals for the mentally ill.

Source: Department of Health, Education, and Welfare, Office of Education; Biennial Survey of Education in the United States, 1956-58, Chapter 5, and annual report, Digest of Educational Statistics.

U.S. Bureau of the Census, Statistical Abstract of the United States: 1970. (91st edition) Washington, D. C., 1970. Table 168, p. 115.

TABLE 8

U.S. EDUCATION INSTRUCTIONAL STAFF AND PUPIL/STAFF RATIOS

(1,000's)

Year	1930	1950	1968
Total Instructional Staff	880	962	2,071
Supervisor	7	9	29
Principals	31	39	86
Teachers, Librarians, etc.	843	914	1,957
Total Enrollment	25,678	25,111	43,891
Staff/Pupil Ratio	1/29.2	1/26.1	1/21.2
Supervisor/Pupil Ratio	1/3668	1/2790	1/1514
Principal/Pupil Ratio	1/828	1/644	1/510
Teacher/Pupil Ratio	1/30.5	1/27.5	1/22.4

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 8,p. 30; Table 28, p. 55.

TABLE 9

(Rankings of the States, 1970)

Pupils per Teacher in Public Elementary and Secondary Schools

	Fall 1959[1]	Fall 1968[2]
Low		
1.	18.1 (S.D.)	18.2 (S.D.)
2.	19.1 (N.D.)	18.8 (Ore.)
U.S.	25.8 (U.S.)	23.1 (U.S.)
High		
1.	30.4 (Ark.)	26.5 (Ga., Tenn.)
2.	33.7 (Miss.)	27.6 (Utah)

Rankings of the States, 1961. Research Division, National Education Association. Research Report 1961-R1, Table 8, p. 10.

Rankings of the States, 1970. Research Division, National Education Association. Research Report 1970-R1, Table 31, p. 20

TABLE 10

NO. 184. PUBLIC ELEMENTARY AND SECONDARY SCHOOLS--PERCENT DISTRIBUTION OF CLASSROOM TEACHERS, BY EXPERIENCE AND DEGREES HELD: 1964 AND 1969

(As of spring of year. Based on sample and subject to sampling variability)

ITEM	1964			1969				
	Total	Elementary School	Secondary School	Total	Elementary School	Secondary School	Men	Women
TEACHING EXPERIENCE								
1-3 years	19.4	16.9	22.5	23.2	21.0	25.6	22.9	23.5
4-6 years	16.1	14.3	18.1	17.1	16.8	17.5	18.4	16.4
7-9 years	10.6	10.1	11.2	11.9	11.5	12.4	14.4	10.6
10-14 years	15.5	15.3	15.8	15.5	15.2	15.7	18.6	13.8
15-19 years	11.4	11.6	11.2	10.2	10.0	10.5	11.8	9.4
20 years or more	26.9	31.8	21.1	22.0	25.5	18.3	13.9	26.3
Median[1]--years	11	12	9	9	10	8	8	9
HIGHEST DEGREE HELD[2]								
No degree	2.3	3.8	0.4	1.3	1.8	0.7	1.2	1.3
2-year degree	6.8	12.1	0.6	3.2	6.0	0.4	0.9	4.5
Bachelor's degree	64.8	66.7	62.6	65.2	71.1	59.1	55.2	70.5
Master's degree	24.3	16.6	33.3	28.3	19.9	36.9	39.1	22.5
Professional degree, 6 years	1.5	0.7	2.4	2.0	1.2	2.8	3.5	1.2

[1]For definition of median, see preface. [2]Excludes doctor's degree.

Source: National Education Association, Washington, D. C.; annual National Sample Survey of Classroom Teachers, unpublished data.

U.S. Bureau of the Census, Statistical Abstract of the United States: 1970. (91st edition) Washington, D. C., 1970. Table 184, p. 123.

TABLE 11

TOTAL AND CURRENT EXPENDITURES PER PUPIL IN ADA IN
PUBLIC ELEMENTARY AND SECONDARY SCHOOLS
U.S. - SELECTED YEARS

School Year	Unadjusted Dollars		Adjusted Dollars (1969-70 Purchasing Power)	
	Total	Current	Total	Current
1929-30	$108	$87	$238	$192
1949-50	259	209	413	333
1967-68	786	658	872	730
1969-70	926	783	926	783

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media, Table 65, p. 83.

TABLE 12

TOTAL PUBLIC ELEMENTARY AND SECONDARY EDUCATION EXPENDITURE
BY LEVEL OF GOVERNMENT AND TOTAL PER PUPIL EXPENDITURE

(1,000's)

Year	1930	1950	1968
Total Public Elementary & Secondary Expenditure	2,088,557	5,437,044	31,903,064
Federal	2,475	155,848	2,806,469
State	353,670	2,165,689	12,275,536
Local	1,727,553	3,115,507	16,821,063
Total expenditure per pupils in ADA			
1. Unadjusted $	108	259	786
2. Adjusted to 1969 $	238	413	872

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 28, p. 55.

TABLE 13

TOTAL PUBLIC HIGHER EDUCATION EXPENDITURE

(1,000's)

Year	1930	1950	1968
Total Public Higher Expenditure	507,142	2,245,661	16,565,909

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 80, p. 104.

TABLE 14

TOTAL PUBLIC AND PRIVATE EDUCATION EXPENDITURE
AND PERCENTAGE SHARE OF GNP SPENT ON EDUCATION

(1,000's)

Year	1930	1950	1968
Total Public & Private Expenditure	3,234	8,796	54,900
Percent of GNP	3.1%	3.4%	7.0%

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 21, p. 40.

TABLE 19

RESULTS OF PUBLIC SCHOOL BOND ELECTIONS: UNITED STATES, 1957-58 TO 1968-69

Fiscal year	Number of elections		Percent Approved Based On Number	Par value of issues voted on (in millions)		Percent Approved Based On Dollar Value
	Total	Approved		Total	Approved	
1	2	3	4	5	6	7
1957-58	(1)	(1)	(1)	$1,542	$1,123	72.8
1958-59	(1)	(1)	(1)	1,801	1,433	79.6
1959-60	(1)	(1)	(1)	2,672	1,792	67.1
1960-61	(1)	(1)	(1)	1,605	1,218	75.9
1961-62	1,432	1,034	72.2	1,849	1,273	68.9
1962-63	2,048	1,482	72.4	2,659	1,851	69.6
1963-64	2,071	1,501	72.5	2,672	1,900	71.1
1964-65	2,041	1,525	74.7	3,129	2,485	79.4
1965-66	1,745	1,265	72.5	3,560	2,652	74.5
1966-67	1,625	1,082	66.6	3,063	2,119	69.2
1967-68	1,750	1,183	67.6	3,740	2,338	62.5
1968-69	1,341	762	56.8	3,913	1,707	43.6

[1] Data not available.

Source: U. S. Department of Health, Education, and Welfare, Office of Education, circulars on Bond Sales for Public School Purposes.

Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media, Table 59, p. 78.

TABLE 16. NONRESIDENTIAL PROPERTY TAXES AS A PERCENTAGE OF MONEY INCOME BEFORE TAXES IN VARIOUS STUDIES.*

INCOME CLASS	United States 1948[a]	Minnesota 1954[b]	Michigan 1956[c]	Wisconsin 1956[d]
Less than $1,000	3.2%	4.3%	—[e]	4.6%
$1,000-$2,000	1.8	5.3	3.7%	3.5
2,000-3,000	1.6	3.2	2.3	2.8
3,000- 4,000	1.5	2.1	1.9	2.4
4,000- 5,000	1.4	2.0	1.5	1.8
5,000- 6,000	—	2.4	—	1.7
5,000- 7,000	—	—	1.4	—
5,000- 7,500	1.5	—	—	—
6,000- 7,500	—	2.4	—	1.6
7,000-10,000	—	—	1.2	—
7,500-10,000	1.8	3.2	—	1.6
Over $10,000	—[f]	5.2	1.7	2.4
All classes	1.7	3.3	1.6	2.0

[a]Richard A. Musgrave and others, "Distribution of Tax Payments by Income Groups: A Case Study for 1948," National Tax Journal, Vol. 4 (March 1951), p. 37; standard case.

[b]O.H. Brownlee, Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits (University of Minnesota, 1960), computed from Tables 5, 6 and 1; allows for federal tax offset only for taxes paid by corporations.

[c]Richard A. Musgrave and Darwin W. Daicoff, "Who Pays the Michigan Taxes?" Michigan Tax Study Staff Papers, Harvey E. Brazer, ed. (Lansing, 1958), Table 5, p. 138; property tax burdens after federal tax offsets.

[d]University of Wisconsin Tax Study Committee, Wisconsin's State and Local Tax Burden (University of Wisconsin School of Commerce, 1959), Table 10, p. 58; property tax burdens after federal tax offsets.

[e]Computed only for o-$2,000 bracket.

[f]Computed only for $7,500-and-over bracket.

BLE 17. PROPERTY TAXES PAID ON OWNER-OCCUPIED SINGLE-FAMILY HOUSES, 1959-1960, BY INCOME OF OWNER*
umber of properties in thousands; dollar amounts in millions

ITEM	Less than $2,000	$2,000-$3,000	$3,000-$4,000	$4,000-$5,000	$5,000-$7,000	$7,000-$10,000	$10,000-$15,000	Over $15,000	All Classes
mber of properties: real tate tax as percentage of come (in thousands)									
ss than 1.0	520	308	355	438	896	517	320	220	3,573
.0-1.9	252	205	291	484	1,111	1,255	682	312	4,592
.0-2.9	203	146	284	453	1,090	1,123	691	250	4,239
.0-3.9	167	133	192	322	932	778	383	136	3,044
.0-4.9	173	125	160	215	567	535	187	66	2,028
.0-7.4	372	255	284	326	681	392	122	35	2,466
.5-9.9	277	146	126	132	157	46	23	6	914
0.0 or more	1,187	191	89	45	79	15	11	11	1,629
11 properties[a]	3,151	1,509	1,781	2,415	5,513	4,662	2,418	1,037	22,485
stimated real estate taxes aid[b]	198	171	230	353	1,018	1,081	726	665	4,442
ean Income in class[c]	977	2,503	3,495	4,497	5,935	8.242	11,753	27,999	6,784[f]
stimated total income in lass[d]	3,078	3,777	6,224	10,861	32,720	38,424	28,419	29,035	152,538
stimated effective rate of eal estate tax[e]	6.43%	4.53%	3.70%	3.25%	3.11%	2.81%	2.55%	2.29%	2.91%

ote: because of rounding, detail may not add to totals.

[a]Covers only properties acquired before 1959; based on a special tabulation by the Housing Division of the Census ureau from Residential Finance Survey data, Census of Housing: 1960.

[b]Number of units in each cell above times mean income in the relevant class times the midpoint of the percentage c interval in the stub. The multiplier for the bottom class was 0.5 percent; that for the top class was 11.0 percent.

[c]Adjusted gross income on U.S. individual income tax returns in class, divided by number of taxable and non taxabl returns, from U.S. Treasury Department, Statistics of Income, Individual Income Tax Returns, 1960. Figures are to near dollar.

[f]Mean income times total number of properties (or households).

TABLE 18. ESTIMATED PROPERTY TAXES PAID ON RENTER-OCCUPIED NONFARM HOUSING, 1959-1960, BY INCOME OF RENTER[a]*

(Dollar amounts in millions)

	Number of Renter-Occupied Units (In thousands)	Estimated Gross Annual Rent[b]	Estimated Real Estate Tax[c]	Mean Income in Class[d]	Estimated Total Income in Class[e]	Estimated Effective Rate of Real Estate Tax[f]
Less than $2,000	4,523	$ 2,658	$ 375	$ 977	$ 4,419	8.49%
$ 2,000-$3,000	2,202	1,534	216	2,503	5,512	3.92
3,000- 4,000	2,412	1,878	249	3,495	8,430	2.95
4,000- 5,000	2,460	2.080	273	4.497	11,063	2.47
5,000- 7,000	3,869	3,621	472	5,935	22,963	2.06
7,000-10,000	2,493	2,640	359	8,242	20,547	1.75
10,000-15,000	1,003	1,210	191	11,753	11,788	1.62
Over $15,000	331	467	125	27,999	9,268	1.35
All classes[g]	19,294	16,088	2,258	4,871	93,990	2.40

[a]Based largely on data in U.S. Bureau of the Census, Census of Housing: 1960, "Metropolitan Housing," Final Report HC(2)-1 (1963), Table A-2.

[b]Number of units in each gross rent class times midpoint of gross rent class interval, times twelve.

[c]Total from Appendix Table B-4; it is estimated that $406 million represented the land tax component, distributed on the basis of rental income in adjusted gross income. The remainder equals 10.6 percent of aggregate gross annual rent; this percentage is applied to each gross rent figure.

[d]Adjusted gross income on U.S. individual income tax returns in class, divided by number of taxable and nontaxable returns, from U.S. Treasury Department, Statistics of Income, Individual Returns, 1960. Figures are to nearest dollar.

[e]Mean income times total number of renter-occupied housing units.

[f]Real estate tax divided by aggregate income in class

[g]Detail may not add to totals because of rounding.

*Netzer, Dick, Economics of the Property Tax, (Washington,D.C.: The Brookings Institute, 1966), p. 52.

TABLE 19

ELASTICITY OF DEMAND FOR PUBLIC ELEMENTARY AND SECONDARY EDUCATION WITH RESPECT TO GNP

Year	GNP[1] (Millions)	EXPENDITURE[2] (Millions)	Elasticity[3]
1939	90,494	1,942	
1949	256,484	4,687	.86 (1939-49)
1959	483,650	12,329	1.47 (1949-59)
1967	793,544	26,877	1.52 (1959-67)

[1] Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 21, p. 40.

[2] Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media. Table 62, p. 81. Expenditures are current expenditures for public elementary and secondary schools.

[3] Elasticity equals the percentage change in expenditures divided by the percentage change in GNP. It is a measure of the responsiveness of changes in expenditures to changes in GNP.

TABLE 20

THE ROLE OF THE PROPERTY TAX, 1962

Level of Government	Property Tax Revenue as a Percentage of		
	Total Tax Revenue	General Revenue from Own Sources	Total General Revenue
All States and Local Governments	45.9	37.8	32.7
State Governments	3.1	2.7	2.1
Local Governments	87.7	69.0	48.0
Counties	93.5	74.5	45.7
Municipalities	73.2	55.6	44.2
Townships	93.3	84.3	67.3
School Districts	98.6	86.2	51.0
Special Districts	100.0	31.7	25.0

Source: Netzer, Dick, Economics of the Property Tax, (The Brookings Institution, 1966), p. 9.

TABLE 21

Percent of Revenue for Public and Secondary Schools

from Federal, State, and Local Sources

	Federal		State		Local	
	1960-61[1]	1967-68[2]	1960-61[3]	1967-68[4]	1960-61[5]	1967-68[6]
S.	3.6	8.0	40.1	39.3	56.3	52.7
w						
1.	0.9 (Ver.)	4.2 (Mich.)	1. 4.0 (Neb.)	5.0 (Neb.)	1. 15.9 (N.M.)	5.5 (Hawaii
2.	1.2 (N.Y.)	4.3 (Conn.)	2. 5.7 (N.H.)	9.0 (N.H.)	2. 16.6 (Hawaii)	19.8 (Del.)
3.	1.4 (N.J.)	4.6 (Ver.)	3. 8.2 (S.D.)	13.7 (S.D.)	3. 18.4 (Del.)	21.1 (N.M.)
iddle						
1.	3.3 (Cal., Conn., Ind.)	7.8 (Kan.)	1. 37.9 (Minn.)	37.3 (Va.)	1. 54.6 (Va.)	52.4 (Nev.)
2.	3.6 (Montana)	8.0 (Del.)	2. 40.4 (Cal.)	39.8 (Md.)	2. 56.3 (Cal.)	52.6 (Mich.)
3.	3.7 (Maine)	8.1 (N.D.)	3. 40.9 (Ariz.)	40.0 (Nev.)	3. 56.4 (N.Y.)	54.0 (Wyo.)
igh						
1.	12.6 (Hawaii)	20.1 (Wyo.)	1. 71.1 (N.C.)	64.6 (N.C.	1. 86.2 (S.D.)	73.2 (Ore.)
2.	13.5 (N.M.)	23.0 (Miss.)	2. 71.8 (S.C.)	72.2 (Del.)	2. 89.7 (N.H.)	85.7 (N.H.)
3.	17.1 (Alaska)	27.1 (Alaska)	3. 79.6 (Del.)	83.2 (Hawaii)	3. 91.4 (Neb.)	86.3 (Neb.)

[1] Rankings 1961 Research Report 1961-R1 Table 40 p. 26

[2] Rankings 1969 Research Report 1969-R1 Table 89 p. 47

[3] Rankings 1961 Research Report 1961-R1 Table 26 p. 19

[4] Rankings 1969 Research Report 1969 R1 Table 87 p. 47

[5] Rankings 1961 Research Report 1961 R1 Table 25 p. 19

[6] Rankings 1969 Research Report 1969-R1 Table 85 p. 46

Government Sources of Revenue for Elementary and Secondary Education
Historical Trend

PUBLIC ELEMENTARY AND SECONDARY SCHOOL REVENUE RECEIPTS FROM FEDERAL, STATE, AND LOCAL SOURCES: UNITED STATES, 1919-20 to 1967-68

School Year	Total	A Federal	B State	C Local (Including intermediate)[1]	School Year	Total	A Federal	B State	C Local (Including intermediate)
1	2	3	4	5	1	2	3	4	5
	Amount in Thousands of Dollars					Percentage Distribution			
1919-20	$970,120	$2,475	$160,085	$807,561	1919-20	100.0	0.3	16.5	83.2
1929-30	2,088,557	7,334	353,670	1,727,553	1929-30	100.0	.4	16.9	82.7
1939-40	2,260,527	39,810	684,354	1,536,363	1939-40	100.0	1.8	30.3	68.0
1941-42	2,416,580	34,305	759,993	1,622,281	1941-42	100.0	1.4	31.5	67.1
1943-44	2,604,322	35,886	859,183	1,709,253	1943-44	100.0	1.4	33.0	65.6
1945-46	3,059,845	41,378	1,062,057	1,956,409	1945-46	100.0	1.4	34.7	63.8
1947-48	4,311,534	120,270	1,676,362	2,514,902	1947-48	100.0	2.8	38.9	58.3
1949-50	5,437,044	155,848	2,165,689	3,115,507	1949-50	100.0	2.9	39.8	57.3
1951-52	6,423,816	227,711	2,478,596	3,717,507	1951-52	100.0	3.5	38.6	57.8
1953-54	7,866,852	355,237	2,944,103	4,567,512	1953-54	100.0	4.5	37.4	58.1
1955-56	9,686,677	441,442	3,828,886	5,416,350	1955-56	100.0	4.6	39.5	55.9
1957-58	12,181,513	486,484	4,800,368	6,894,661	1957-58	100.0	4.0	39.4	56.6
1959-60	14,746,618	651,639	5,768,047	8,326,932	1959-60	100.0	4.4	39.1	56.5
1961-62	17,527,707	760,975	6,789,190	9,977,542	1961-62	100.0	4.3	38.7	56.9
1963-64	20,544,182	896,956	8,078,014	11,569,213	1963-64	100.0	4.4	39.3	56.3
1965-66	25,356,858	1,996,954	9,920,219	13,439,686	1965-66	100.0	7.8	39.1	53.0
1967-68	31,903,064	2,806,469	12,275,536	16,821,063	1967-68	100.0	8.8	38.5	52.7

[1] Includes a relatively minor amount from other sources (gifts and tuition and transportation fees from patrons), which accounted for 0.4 percent of total revenue receipts in 1967-68.

NOTE: Beginning in 1959-60, includes Alaska and Hawaii. Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Health, Education, and Welfare, Office of Education, Statistics of State School Systems.

Federal - From .3% in 1919-1920 to 8.8% in 1967-68.

State - From 16.5% in 1919-1920 to 38.5% in 1967-68.

Local - From 83.2% in 1919-1920 to 52.7% in 1967-68.

While Federal expenditure show the greatest percentage increase the major portion of the percentage decrease in local expenditures has been shifted to the state. However, the trend of the data would indicate that Federal Revenue is stabilized somewhere around 40% of total revenue.

Standard Education Almanac: 1971, editor-in-chief Alvin Renetzky. Los Angeles: Academic Media. Table 58, p. 78

PERSONAL INCOME, 1969, RELATED TO ESTIMATED EXPENDITURES FOR PUBLIC ELEMENTARY AND SECONDARY EDUCATION

	Total Expenditures for Public Elementary and Secondary Education As a percent of personal income	Current Expenditures for Public Elementary and Secondary Day Schools As a percent of personal income
U.S.	5.46	4.46
Low		
1.	4.05 (Neb.)	3.17 (Neb.)
2.	4.07 (Mass.)	3.46 (Mass.)
3.	4.26 (Conn.)	3.52 (Ill.)
Middle		
1.	5.39 (Co.)	4.41 (Wash.)
2.	5.47 (Va.)	4.44 (Ark., Del.)
3.	5.48 (Penn.)	4.49 (N.C., Va.)
High		
1.	7.59 (Mont.)	6.25 (Alaska)
2.	7.86 (N.M.)	6.35 (Vt.)
3.	8.23 (Alaska)	6.68 (N.M.)

Standard Education Almanac: 1971, editor-in-chief, Alvin Renetzky. Los Angeles: Academic Media Table 63, p. 82.

TABLE 24

ESTIMATED EXPENDITURE PER PUPIL IN ADA IN PUBLIC ELEMENTARY AND SECONDARY DAY SCHOOLS 1969-70

Expenditure Per Pupil

	Total	Current	Capital Outlay	Interest on School Debt
U.S.	$926	$783	$115	$28
Low				
1.	$503 (Ala.)	$438 (Ala.)	$50 (Miss.)	$ 8 (Miss.)
2.	534 (Miss.)	527 (Neb.)	51 (Ala.)	9 (N.M., Okla., W.V.)
3.	617 (Okla.)	534 (Ark.)	54 (Conn., N.C.)	11 (S.D.)
Middle				
1.	$920 (Kan.)	$764 (Nev.)	$111 (N.J.)	$27 (La.)
2.	923 (Fla.)	793 (Del.)	112 (Ore.)	28 (R.I., Wis.)
3.	931 (Wyo.)	803 (Ill.)	113 (Cal., Ma.)	29 (N.H.)
High				
1.	$1137 (Md.)	$963 (N.J.)	$217 (Md.)	$45 (Minn.)
2.	1416 (Al.)	1083 (Al.)	261 (Del.)	47 (Penn.)
3.	1420 (N.Y.)	1237 (N.Y.)	299 (Al.)	52 (Del., Nev.)
Unweighted average				
Low 3 states	551	500	52	8.7
High 3 states	1324	1094	259	50
Range of Unweighted averages	773	594	207	41
Unweighted average as a national average				
Low 3 states	59.5	63.9	45	31
High 3 states	143	140	225	179

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Kenetzky. Los Angeles: Academic Media. Table 64, p. 83.

SUMMARY OF EXPENDITURES FOR PUBLIC ELEMENTARY AND SECONDARY EDUCATION, BY PURPOSE: UNITED STATES, 1919-20 to 1967-68

Percentage Distribution

School year	1919-20	1929-30	1939-40	1949-50	1957-58	1959-60	1961-62	1963-64	1965-66	1967-68
Total expenditures, all schools.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Current expenditures, all schools.....	83.4	80.0	83.4	80.9	76.5	79.8	81.2	82.7	82.7	84.1
Public elementary and secondary schools..	83.1	79.6	82.8	80.3	75.6	79.0	80.2	80.7	80.2	81.5
Administration.....	3.5	3.4	3.9	3.8	3.3	3.4	3.5	3.5	3.6	3.8
Instruction.....	61.0	56.9	59.9	53.3	50.9	53.5	54.5	55.1	55.0	55.7
Plant operation....	11.2	9.3	8.3	7.3	6.8	6.9	7.0	6.8	6.7	6.3
Plant maintenance..	2.9	3.4	3.1	3.7	2.8	2.7	2.6	2.5	2.4	2.4
Fixed charges.....	.9	2.2	2.1	4.5	5.3	5.8	5.9	6.3	6.5	7.2
Other school services[1].....	3.5	4.4	5.5	7.7	6.6	6.6	6.8	6.5	6.0	6.1
Summer schools.....	([2])	([2])	([2])	([2])	([4])	.1	.1	.1	.3	.3
Adult education[2].....	.3	.4	.6	.6	.3	.2	.2	.4	.5	.5
Community colleges...	([2])	([2])	([2])	([2])	.3	.2	.4	1.2	1.1	1.2
Community services...	([1])	([1])	([1])	([1])	.3	.4	.4	.4	.6	.7
Capital outlay[3].....	14.8	16.0	11.0	17.4	21.0	17.0	15.6	14.0	14.3	12.9
Interest.....	1.8	4.0	5.6	1.7	2.5	3.1	3.2	3.3	3.0	3.0

Source: Standard Education Almanac: 1971, editor-in-chief, Alvin Reuetzky. Los Angeles: Academic Media Table 62, p. 81.